Engraved for the Youth's Faithfull Monitor &c.

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1481 d. 4

Youth's faithful Monitor:

OR, THE

Young Man's Beſt Companion.

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To which is added

A curious Abſtract of the HISTORY of ENGLAND, with all the remarkable Events down to the preſent Year.

With a great Variety of COPPER-PLATES *and* CUTS.

By WILLIAM WOOLGAR, Accomptant.

The THIRD EDITION.

Improved, enlarged and corrected

By JOHN WRIGHT, Gent.

Author of the American Negotiator.

LONDON:

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PREFACE.

AS it may in all Probability be deemed a Presumption in me to publish YOUTH'S FAITHFUL MONITOR: or, The YOUNG MAN'S BEST COMPANION, *when there are already so many of that Kind upon such useful Subjects; give me Leave in this short Preface to apologize for what induced me to the Publication.*

Knowledge is at all Times not only deemed necessary to Youth (several of whom are intrusted to my Care) but acceptable to those of riper Years. As Conciseness is the best Method of teaching, and there being always Room for Improvement, was my chief and principal Motive.

I have gone upon a different Plan from any of the same Nature, by treating upon Subjects that others have omitted; and rendered the whole intelligible not only to the meanest Capacity, but useful and edifying to adult Persons.

1ſt. *I have begun with a compleat Engliſh Grammar, by which Youth may learn the Propriety of the Engliſh Tongue without the Help of a Maſter. I have fully treated upon Writing, Reading and Arithmetic in all its Branches; and proceeded by Degrees to Surveying, Menſuration and Gauging. I have likewiſe largely expatiated upon the Art of Book-keeping (that others have only hinted at) which is neceſſary to be known by thoſe who are bred to the Accompting-houſe, giving them the Forms of Bills of Lading, Invoices, Entries, Bills of Parcels and Receipts, Nature of Buſineſs tranſacted at the Water-ſide, with the Rates of Watermen as ſet forth by the Lord Mayor and Court of Aldermen; ſeveral Tables of Intereſt, calculated on a new Plan, peculiarly adapted for India Bonds and the public Funds, &c. which upon ſlight Calcution anſwer the Purpoſe of the beſt Tables of Intereſt contained in entire Volumes on that Subject alone.*

2dly, *I have added an entertaining Syſtem of Aſtronomy and Geography, ſhewing the Nature and Uſe of the Globes, celeſtial and terreſtrial; and not only under the Head of Geography, given the principal Towns in England and Wales, but alſo their Diſtances from London, with their Market Days, and ſeveral Fairs therein held, that the Reader cannot miſs of finding them.*

3dly,

3dly, *I have entertained the Reader with a general Survey of Dialling, with the Form of each ſeperate Dial, drawn to an exact Truth, and according to the regular Plan of Menſuration.*

4thly, *There are ſeveral curious Receipts, not contained in any other Collection whatſoever, that may be effectually and ſafely depended on.*

Laſtly, *I have concluded the whole with a complete and impartial Abſtract of the Hiſtory of England, from the Coming in of the Romans, with all remarkable Events down to the preſent Year, without omitting any material or curious Occurrences that have happened. The whole of which is ſo adapted to the Capacity of Youth, as will render him not only capable of diſcourſing upon the moſt material Parts of Hiſtory, but refreſh his Memory by way of Chronology.*

As for ſuch as are perfect Maſters of the Sciences contained herein, this little Piece may appear inſignificant; but I am ſenſible that there are many in the World to whom it will prove of infinite Service; and as I pretend not to recommend the Work by comparing it with other Authors, ſo am I perſuaded it will not be totally condemned, eſpecially when it is conſidered that I have engaged an able Aſſiſtant in this preſent Edition.

I have no more at preſent to add, but to return my ſincere Thanks to the Public, who have encouraged my former Editions, and muſt ſtill beg of every candid and judicious Reader, that if he ſhould by Chance find an Error in a Letter or Figure, to excuſe it, for notwithſtanding all my Care, Errors of the Preſs are but too often ſubject to eſcape the niceſt Eye.

Feb. 27, 1766. 1766 1766

William Woolgar.

THE

THE

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YOUTH's FAITHFUL MONITOR:

OR, THE

YOUNG MAN's

BEST

COMPANION.

Of LEARNING *in General; and the Uſe of Letters.*

A Good, true and well grounded education in youth, ſeldom fails of making them good men; and as learning is the chief foundation, great care ſhould be taken to inſtruct them in ſuch a manner as to render them in time uſeful members to community.

All poſſible methods ſhould be taken to make learning in general advantageous to the meaneſt capacities; and tho' the deſign of this book is chiefly calculated to form the minds of youth, the author has been remarkably careful to compile what will be equally uſeful and inſtructive to thoſe of riper years.

Since then education in general is ſo neceſſary to make the man, how careful ſhould the youth be to make learning his chief ſtudy, and by cloſe application, endeavour to gain the knowledge of reading and writing with the greateſt propriety. Having ſaid thus much of education in general, I proceed firſt to give a ſhort account of the ſeveral parts of the Engliſh tongue, taken in a grammatical ſenſe: By which it will appear to be extremely ſimple in its com-

poſitions, and free from the many rules which render others ſo difficult to the learner: For tho' Grammer is the ſame in all languages, (except the Chineſe,) yet every Grammar ought to be adapted to the genius of that language, which it is intended to illuſtrate and explain. But before I proceed to grammar, give me leave, for the better inſtruction of my youthful reader, to begin with the letters, the number of which are 26, to wit, *a b c d e f g h i j k l m n o p q r ſ t u w x y z.* The *i* and *u* uſed to be wrote *j* and *v*, and diſtinguiſhed by *i* and *u* conſonants, but at preſent are more properly called *ja* and *vee*; obſerve well the different forms of them, whether great or ſmall, by which means you muſt diſtinguiſh them in pronunciation.

Letters are diſtinguiſhed, according to their ſound, into vowels and conſonants: A vowel is a letter that ſounds by itſelf, and are ſix in number, *viz. a, e, i, o, u,* and *y* the Greek vowel, which alſo is an Engliſh vowel, when it comes after a conſonant, has the ſound of *i*, as in *by, ſly, reply, ſyllable*, &c. but is never uſed, in the middle of a word but always at the end, except the word is derived from foreign language. A conſonant is a letter that ſounds not, except it is joined to a vowel, for without ſome of the vowels no ſyllable can be made; as *b, c, d*, &c. without the aid of a vowel, cannot be ſounded. Though we have 26 letters, and 6 of them vowels, yet we have 21 conſonants; for *y*, when ſet before any vowel in the ſame ſyllable, becomes a conſonant; as in *youth, yonder, beyond*, &c. *Note*, That *j* hath the ſound of *g*, as in *join, jangle, jingle*, &c.

When two vowels come together in a ſyllable, and are not parted in the pronunciation, but united in one ſound, they are called diphthongs; of theſe there are 13, viz, *ai, ei, oi, ui, au, eu, ou, ee, eo, ea, eu, oa*, and *ie*; as in *maid, faith, either, join, aul, eunuch, ſtout, feed, ſeed, food, bread, ſtealth, wealth, people, ſteeple, boat, goat, heat, beat, ſeat, friend, field*, &c. *Note*, That in the firſt 7 words, both vowels are ſounded; but in the other 15 one of them is ſcarcely heard.

Tripthongs are thoſe, where three vowels meet in one ſound; as in *beauty, beau, lieu*, and *quaint*: Likewiſe *ay, ey, oy, uy*; *aw, ew*, and *ow* become diphthongs at the end of words, but are called improper diphthongs; as in *ſay, key, joy, ſaw, bow*, &c. *Note, aw ew* and *ow* are commonly ſounded as *au, eu* and *ou*.

The

Theſe letters following keep their natural ſound, viz. *b*, *c*, *e*, *f*, *g*, *i*, *l*, *o*, *ſ*, *t*, *u*, *x*, *y*; and the double letters *ch*, *gh*, and *ph*. viz.

B is ſounded like *t* in *ſubtil*.

C before *a*, *o*, *u*, *l* and *r*, is always ſounded like *k*; as in *cat*, *cord*, *cup*, *cloth*, *cramp*: but before *e*, *i* and *y*, is always ſounded like *s*; as in *cellar*, *civil*, *cypreſs*: it is alſo ſounded like *s* in *muſcle*; and in words derived from the French, having *h* after it; as in *machine*.

E is ſounded like *a* long, in *there*, *where*, &c.

F is ſounded like *v* in *of*.

G before *e* and *i* in ſome words, and almoſt always before *y*, is ſounded like *j*; as in *gentleman*, *giant*, *Egyptian*.

I in words derived from the French, ſounds like *ee*; as in *machine*: it alſo ſounds like *u* ſhort; in *bird*, *third*, &c.

L is ſounded like *m* in *ſalmon*.

O is ſounded like *a* long in *alloy*; like *e* ſhort in *women*; and like *u* ſhort in *worm*.

S is frequently ſounded like *z*; as in *preſent preſume*.

T is ſounded like *s*, in *whiſtle*, *thiſtle*; *ti* before a vowel, is ſounded like *ſi* or *ſh*, as in *nation*; except when *ſ* goes immediately before it; as *celeſtial*; or at the beginning of a word; as *tied*; or in derivatives; as *mightier*, *mightieſt*, *emptied*.

U is ſounded like *e* ſhort in *bury*, and like *i* in *buſineſs*.

X hath no ſound of its own; but at the beginning of a word is always ſounded like *z*; as in *Xenophon*; and in the middle and end of words like *ks*; as in *wax*, *Xerxes*.

Y at the end of monoſyllables, is ſounded like *i* long; as in *by*, *my*; but in the middle of words of more than one ſyllable, it is ſounded like *i* ſhort; as in *Egypt*; and at the end of words of more than one ſyllable, it uſually ſounds like *e*; as in *many*.

Ch is ſounded like *qu*, as in *choir*, *choriſter*.

Gh ſometimes at the end of a word, and always *ph* when they come together in the ſame ſyllable, ſound like *f*; as in *laugh*, *elephant*; except where *ph* ſound like *v*, as in *Stephen*.

Of LETTERS *great and ſmall, and when to be uſed.*

GREAT Letters ſhould never be uſed in the middle of a word, or yet at the latter end, except the word be wholly in capitals, as *JERUSALEM, GOD, CHRIST*, &c. for it would look very ridiculous to ſee great letters in the middle or end of words, as *jeRuſAlem*, &c. inſtead of *Jeruſalem*. But all capitals ſhould be written at the beginning of ſentences; as, *The good man feareth God*, &c. alſo at the beginning of interlocutions: Likewiſe after every full ſtop: At the beginning of all proper names of places, ſhips, rivers, and at the chriſtian and ſir-names of men and women. The perſonal pronoun I, and the interjection O (are to be remarked) ſhould always be a capital, let them fall either at the beginning or middle of ſentences. Obſerve likewiſe the ſmall *s* is commonly written *ſ* at the beginning and middle of a word, and *s* at the end; but if two happen together in the middle or at the end of a word they are to be written thus, *ſs*.

The cuſtom uſed formerly to prevail, of placing initial letters to all manner of ſubſtantives, but as it is of no very great ſignification, authors of late date have left it off. —Thus much for letters; give me leave to proceed next to grammar.

GRAMMAR.

GRAMMAR is the art of ſpeaking with the trueſt propriety, and is divided into four parts, *viz.*

1. ORTHOEPY, or the art of pronouncing words with propriety and good grace.

2. ORTHOGRAPHY, or the art of ſpelling with truth, and writing our words with proper letters.

3. ETYMOLOGY, how to diſtinguiſh words by various ſignifications, kinds and properties. And

4. SYNTAX, which teaches how to join words in a ſentence, or ſentences together.

Of SYLLABLES.

A SYLLABLE is the pronunciation of one letter or more in one breath; as ſtrength, &c. and can conſiſt of no more letters than eight, yet there are but very few that admit of ſo many.

Of the DIVISION *of* SYLLABLES.

Diviſion of ſyllables may be comprehended in ſeveral general rules.

1. A ſingle conſonant between two vowels, or between a vowel and a diphthong, muſt be joined to the latter ſyllable, as, *ba-bit.*

Except the letters *f*, *w*, *x*, which go to the former ſyllable, as, *up-on*, *pow-er*, *ex-iſt.*

Except likewiſe words compounded, which muſt be divided according to their original.

2. When two conſonants come in the middle of a word, that cannot begin a word, they muſt be divided, as, *lum-ber.*

Except when they come in the middle of a derivative, though not proper to begin a word, they muſt not be divided, as, *ſtand-ard.*

3d. When two conſonants come between two vowels, and are ſuch as cannot begin a word, they muſt be divided as *ut-moſt*, *un-der*, *in-feſt*, &c. but in caſe they can begin a word, they both go to the latter vowel, as, *fa-ble*, *ſti-fle.*

4th. When three conſonants meet in the middle of a word, if they begin a word they muſt begin a ſyllable, as, *il-lu-ſtrate.*

If they are proper to end a word, they may all be put to the former ſyllable, as, *thatch-er.*

If the two firſt be proper to end a word, the third may go to the latter ſyllable, as, *rank-neſs.*

If the two laſt be proper to begin a word, they likewiſe begin the ſyllable, as, *hin-drance*, *pim-ple.*

5. When two vowels come together, and are no diphthongs, that is are fully ſounded, they muſt be divided into ſyllables thus, as *ſo-ci-ety*, *vi-ol*, *vir-tu-ous*, &c.

Of WORDS.

THE uſe of WORDS are to convey our ſenſe of things to another perſon, and for that purpoſe are divided into four claſſes, *viz.*

1. Names. 2. Qualities. 3. Affirmations. And 4. Articles.

NAMES.

Names declare things themſelves, and need not the help of any other word to make them underſtood, as, *a boy. a*

ſhip, a cow, &c. But theſe names in general admit of *a, an,* or *the* before them, as *a houſe, an onion, the world.*

Sometimes they need not either of thoſe articles, but ſtand by themſelves as *miſery, joy, ſorrow,* &c.

Theſe names have two different numbers, *viz.* the Singular and Plural. The Singular ſpeaketh but of one, as *a ſtone*; the Plural of more then one, as *ſtones.*

The manner of making ſingulars plurals, is by adding *s*, as *cap, caps, mug, mugs, cat, cats,* &c.

But when the ſingular ends in *ce, ch, ſe, ſh, x, zz,* or *ge*, when ſounded ſoft we either muſt add *s*, or *es*, and make another ſyllable, as, *grace, graces*; *church, churches*; *purſe, purſes*; *fiſh, fiſhes*; *fox, foxes*; *mace, maces*; *ſtage, ſtages.*

There are many exceptions to this rule, as *man* in the plural number makes *men*; *woman, women*; *child, children*; *knife, knives*; *ſtaff, ſtaves,* &c.

There are ſeveral words which have no ſingular number; and, on the contrary, there are ſome which have no plural, Proper names have no plural, becauſe they agree but to one.

As to perſonal names when mentioned in converſation, they muſt be either ſpoken of ourſelves to another, or of a third; and there be three perſons in the ſingular, and three in the plural, *viz.*

Singular.	Plural.
I is the 1ſt perſon,	*We* the 1ſt perſon,
Thou, thee or *you*, the 2d.	*Ye* or *you*, the 2d perſon,
He, ſhe or *it*, the 3d perſon.	*They*, the 3d Perſon.

Theſe following have a leading ſtate, as *I* has *me*; *he, him*; *ſhe, her*; *we, us*; *ye* or *you, them*; *they, them.*

Note, *I, he, ſhe, we, ſhe* and *they*, begin a ſentence but ſeldom end it: *me, him, her, us* and *them*, ſeldom or never begin a ſentence, but often end one.

QUALITIES.

Some qualities proceed from perſonal names, as *my, mine*; *thy, thine*; *our, ours*; *your, yours*; *her, hers*; *their, theirs,* &c.

Theſe qualities ſerve to expreſs the nature, or manner of things, as *good, bad, great, ſmall, green, black,* &c. and by putting to it a name, or thing, will make good ſenſe, as *a good boy, a bad girl, a great dog, a ſmall room, a green leaf, a black hat,* &c.

Note,

Note, The articles *a*, *an*, or *the* are qualities, but have a different uſe and ſignification, *viz. a* or *an* expreſſes the ſame; only *a* is uſed before a conſonant, and *an* before a vowel, as *a ſword*, *a knife*; *an egg*, *an ear*. The article *the*, ſhews the reality of a thing itſelf, as, *the clock ſtruck ſix*; ſignifies that very clock we are ſpeaking of.

Qualities, likewiſe, have three degrees of compariſon, as firſt, *tall*, ſecond, *taller*, third, *talleſt*; or ſuppoſe I am ſpeaking of three perſons, *John is tall*, *James is taller*, *Samuel is talleſt*; again, *Sarah is pretty*, *Mary is prettier*, *Suſan is prettieſt*.

Of AFFIRMATIONS *or* VERBS.

A VERB is a part of ſpeech, that betokens doing, ſuffering, or being, as *I love*, *I am loved*, *I live*.

Verbs are known by the word *to* going before them, as *to laugh*, *to cry*, *to weep*, *to dance*, *to be cold*, *to be lame*, &c.

There are three ſorts of verbs, viz. active, paſſive and neuter. A verb active, denotes an action, or doing of any thing; and in ſuch a manner, that the perſon or thing it acts upon follows the verb, as *I love her*, &c. And a verb that ſignifies ſuffering, has the title of a verb paſſive, as *I am loved*. The Engliſh tongue has no paſſive verbs, for we have not a word that denotes ſuffering, but is ſupplied by the uſe of two or three words, which are called auxiliary or helping verbs.

A verb neuter ſignifies the ſtate or being, and ſometimes the action of a perſon or thing but has no noun after it to denote the ſubject of action.

A verb neuter is ſometimes active, as *I run*; and ſometimes paſſive, as *I am ſick*.

There is another verb called imperſonal, being without any diſtinction to either ſex; and is governed by the word *it*, as, *it thunders*, *it ſnows*, *it is hot*, &c.

There are alſo belonging to verbs four things, numbers, perſons, moods and tenſes; and firſt of numbers, *viz.* two, the ſingular and plural.

Of PERSONS.

Verbs have ſix perſons, *viz.* three ſingular, and three plural, as

I, *thou*, or *you*, *he* or *ſhe* or *it*, are ſingular;
We, *ye* or *you*, and *they* are plural.

Or

Or thus,

Singular.	Plural.
I play or *do play*,	*We play* or *do play*,
Thou playeſt or *doſt play*,	*Ye* or *you play*, or *do play*,
He playeth or *doth play*.	*They play* or *do play*.

Of Moods.

Moods ſignify the various ways of expreſſing a verb or action of a verb; and ſtrictly ſpeaking, the Engliſh have no mood; becauſe they have no alteration of the verb itſelf, unleſs in the ſecond and third perſons ſingular of the preſent tenſe, and the ſecond perſon ſingular of the preterimperfect: therefore, the mood in Engliſh is expreſſed or known by certain words called helping verbs; of which are two ſorts, perfect and defective: the former are the verbs *am*, *be*, or *have*; the latter *do*, *may*, *can*, *might*, *will*, *would*, *ſhall*, *ſhould*, *could*, *muſt*, or *ought*; as thus, the poſſibility of any thing to do, or to be done, is expreſſed by *can* or *would*, the liberty or deſign of the ſpeaker or doer, by *may* or *might*; the inclination by *will* or *would*; and the neceſſity of doing a thing, by *muſt* or *ought*, *ſhall* or *ſhould*.

Of Tenses.

Tenſe, in grammar, ſignifies the different times of an action, *viz.* firſt, it ſhews the action or thing that is doing, but not finiſhed. Second the action or thing finiſhed or done, without regard to any thing elſe. Third, the action not yet done, but will ſoon be done or finiſhed, which are comprehended in the time preſent, time paſt, and time to come.

There is another diviſion of time, *viz.* The time paſt is ſubdivided, 1ſt. into the time not perfectly paſt. 2d. The time long-paſt; and the time to come is ſubdivided into the time ſome great while to come.

Of REGULAR VERBS.

REGULAR verbs are thoſe that obſerve a ſtated rule in the formation of their times.

A regular verb keeps the ſame in every perſon, tenſe, or time, ſave ſometimes it has a ſyllable more in ſome of the perſons, and a ſyllable more in ſome of the tenſes, of which I ſhall give you a hint by way of example.

Preſent

Preſent Time.

Singular. I love *or* do love, thou loveſt *or* doſt love, *or* you love *or* do love, he loveth, loves, *or* doth *or* does love.

Plural. We love *or* do love, ye *or* you love, *or* do love, they love *or* do love.

Preterperfect time, or Time paſt.

Singular. I have loved, thou haſt *or* you have loved, he has *or* hath loved.

Plural. We have loved, ye *or* you have loved, they have loved.

Preterimperfect Time, *or* Time not perfectly paſt.

Singular. I loved *or* did love, thou lovedſt *or* didſt love, *or* you loved *or* did love, he loved *or* did love.

Plural. We loved *or* did love, ye *or* you loved *or* did love, they loved *or* did love.

Preterpluperfect Time, *or* Time long paſt.

Singular. I had loved, thou hadſt *or* you had loved, he had loved.

Plural. We had loved, ye *or* you had loved, they had loved.

Firſt future Time, *or* Time to come.

Singular. I ſhall *or* will love, thou ſhalt *or* wilt love, *or* you ſhall *or* will love, he ſhall *or* will love.

Plural. We ſhall *or* will love, ye *or* you ſhall *or* will love, they ſhall *or* will love.

Second future Time, *or* Time of long ſpace to come.

Singular. I ſhall *or* will love hereafter, thou ſhalt *or* wilt *or* you ſhall *or* will love hereafter, he ſhall *or* will love hereafter.

Plural. We ſhall *or* will love hereafter, ye *or* you ſhall *or* will love hereafter, they ſhall *or* will love hereafter.

The perfect verb *am* or *be*, is uſed to ſupply the want of verbs paſſive in the Engliſh language, and make the ſentence compleat, by being joined to them, or going before them, as *I am grieved.*

As for Example:

Preſent Time.

Singular. I am wounded, thou art *or* you are wounded, he is wounded.

Plural.

Plural. We are wounded, ye *or* you are wounded, they are wounded.

Preterperfect Time, or Time paſt.

Singular. I have been wounded, thou haſt *or* you have been wounded, he hath *or* has been wounded.

Plural. We have been wounded, ye *or* you have been wounded, they have been wounded.

Preterimperfect Time, or Time not perfectly paſt.

Singular. I was wounded, thou waſt *or* you was wounded, he was wounded.

Plural. We were wounded, ye *or* you were wounded, they were wounded.

Preterpluperfect Time, or Time long paſt.

Singular. I had been wounded, thou hadſt *or* you had been wounded, he had been wounded.

Plural. We had been wounded, ye *or* you had been wounded, they had been wounded.

Firſt future Time, *or* Time to come.

Singular. I ſhall *or* will be wounded, thou ſhalt *or* wilt *or* you ſhall *or* will be wounded, he ſhall *or* will be wounded.

Plural. We ſhall *or* will be wounded, ye *or* you ſhall *or* will be wounded, they ſhall *or* will be wounded.

Second future Time, or Time of long ſpace to come.

Singular. I ſhall *or* will be wounded hereafter, thou ſhalt *or* wilt *or* you ſhall *or* will be wounded hereafter, he ſhall or will be wounded hereafter.

Plural. We ſhall *or* will be wounded hereafter, ye *or* you ſhall *or* will be wounded hereafter, they ſhall *or* will be wounded hereafter.

Of PARTICIPLES.

A participle is a part of ſpeech derived of a verb, and ſignifies either being, doing, or ſuffering, as a verb does: Of which there are two, *viz.* active, having *ing* added to the verb, as *loving*; paſſive having *d*, *t*, or *n* added, as *loved*, *taught*, *ſlain*.

Of ADVERBS.

An adverb is a part of ſpeech joined to a verb, to an adjective, to a participle, or to another adverb, to declare their ſignification, as

Firſt

Firſt, to a verb thus:
Sarah loves John ſincerely.
Secondly, to an adjective thus:
Chloe is a very comely Laſs.
Thirdly, to a Participle thus.
He is a Man juſtly deſerving preferment.
Fourthly, to another adverb thus:
He ſpeaks very prudently.

Adverbs ending in *ly*, are derived from adjectives, as from *juſt*, *true*, *brave*, &c. come *juſtly*, *truly*, *bravely*, &c. Some adverbs are likewiſe compared, as *ſoon*, *ſooner*, and *ſooneſt*, &c.

Of CONJUNCTIONS.

A Conjunction is a part of ſpeech that joins words and ſentences together, and ſhews the reaſon of a thing, or the manner of their dependance.

The following are ſome of the principal, viz. *and*, *as*, *alibe'* *alſo*, *but*, *becauſe*, *either*, *except*, *for*, *howſoever*, *if*, *likewiſe*, *moreover*, *no*, *not*, *namely*, *nevertheleſs*, *or*, *otherwiſe*, *ſave*, *ſince*, *that*, *therefore*, &c.

There are various kinds of conjunctions, but the chief are *copulatives*, *disjunctives*, *caſuals*, and *conditionals*, as for Example:

1. A conjunction copulative, joins words or ſentences together, as *I ſing*, *and James dances.*

2d. A conjunction disjunctive, joins words, but makes a diviſion in the ſenſe of the thing, as *I or James ſhall be beat.*

3d. A conjunction caſual, ſhews the cauſe or reaſon of a thing, as, *I do work that I may eat.*

4th. A conjunction conditional, renders the ſpeech doubtful, as, *If the ſeas dry up, we ſhall find great riches.*

Of PREPOSITIONS.

A Prepoſition is a part of ſpeech moſt commonly ſet before other parts of ſpeech, and are either 1ſt. In appoſition or ſeperated, 2d. Joined or in compoſition.

Prepoſitions of appoſition are theſe, *viz. above*, *about*, *after*, *againſt*, *at*, *among*, *amongſt*, *before*, *beſide*, *betwixt*, *between*, *below*, *behind*, *beyond*, *by*, *beneath*, *far*, *from*, *in*, *into*, *off*, *on*, *or*, *upon*, *out*, *of*, *towards*, *to*, *until*, *on this ſide*,

ſide, on that ſide, over, through, under, up to, with, within, without. As for example:

John and Peter travelled into Egypt.

Here *into* is the prepoſition, ſeperated from the noun; but if the noun be left out, it is expreſſed thus, *John went before, and Peter followed after*, viz. *John went before Peter, and Peter followed after John.*

Prepoſitions of compoſition are theſe, *viz. ad, en, un, up, out, mis, dis*, &c. *adverb, enjoy, undone, upſide*, &c.

Of INTERJECTIONS.

AN interjection is a part of ſpeech, that betokens a ſudden paſſion of the mind, either by being ſurprized overmuch, or by jeſting, doubting, &c. and generally have a note of admiration after them, as *oh! alas! O! wondrous! ho brave boys!*

Of SENTENCES.

A Sentence is the joining two or more words together ſo as to make perfect ſenſe, as, *Julius Ceſar was a worthy man, for under his conduct the Romans firſt entered into Britain.*

There are two kinds of ſentences, ſimple and compound. A ſimple ſentence is that wherein there is but one verb and one nominative word of the ſubject either expreſſed or underſtood, as, *the bell rings.*

A compound ſentence is two ſimple ſentences joined together by a conjunction, or a relative, as, *I run and you fight, I laugh and you mourn, I pipe and you dance*, &c.

Moreover, for the due joining of words, there are three concords. The firſt is between the nominative word and the verb, *viz.* The nominative word is the thing or perſon that either is, does or ſuffers; and is, in general, ſet before the verb, as, *James laughs, John mourns, Judas betrays*, &c. Except when a queſtion is aſked, and then the nominative is ſet after a verb, as *loveſt thou? doth the king come?*

Likewiſe if it be an imperative ſentence, as, *work thou, ring the bell*, &c.

And ſometimes when the words *it* or *there* come before the verb, as, *it is my book, there came one to me.*

In a conditional ſentence, *Had I been covetous to pleaſe*

my maſter, I would have uſed diligence; for, if I had been covetous, &c. To find the nominative word or caſe to the verb, aſk this queſtion, who or what? and the word that anſwers to the queſtion ſhall be the nominative caſe to the verb, as, *I read the book through:* Who read the book through? *I*, &c.

A verb perſonal agrees with his nominative caſe, in number and perſon, as, *the maſter readeth, and ye regard not.*

Many nominative caſes ſingular, with a conjunction copulative coming between them, will have a verb plural, as, *Thomas and Charles were both at ſchool*, &c.

Note alſo, That ſometimes the infinite mood of a verb is the nominative caſe to the verb, as, *to ſteal is ſcandalous.* Sometimes a whole clauſe aforegoing, may be the nominative caſe to the verb, as, *to riſe betimes in the morning, is the moſt wholeſome thing in the world.*

When a verb follows a noun of multitude, it may be put in the plural, when the caſe is abſolutely determined to be more than one, as, *the multitude wondered when they ſaw the dumb to ſpeak, the lame to walk*, &c. and it is moſt commonly of the ſingular number, as *the multitude is very noiſy. The crowd is gone*, &c.

The ſecond concord is between the ſubſtantive and the adjective. When you have an adjective, aſk this queſtion, who or what? the word that anſwers to the queſtion, ſhall be the ſubſtantive to it. There is no diſtinction of caſe, gender or number in the application of adjectives to ſubſtantives in the Engliſh, as in Latin, as, *a comely laſs, a dirty boy*, &c.

The pronouns *this* and *that*, make *theſe* and *thoſe*, in the plural, as, *this man is my ſervant; theſe men are my ſervants; that book is my ſon's; thoſe books are my daughter's.*

The adjective, for the moſt part is ſet before the ſubſtantive as, *a good boy.* Yet ſometimes when there are more adjectives than one joined together, or one adjective with other words depending on it, the adjective may be ſet after the ſubſtantive, as, *a commander, both ſtout and brave.* And ſometimes when the article *the* comes between, as *king George the third*, &c.

When two ſubſtantives are put together in compoſition, the firſt takes to itſelf the nature of an adjective; and is

commonly joined to the following ſubſtantive by a hyphen, as, *a water-caſk*, *a ſea-horſe*, &c.

Adjectives are frequently uſed as ſubſtantives, as *ſome*, for *ſome men*; *few*, for *few men*.

The third concord is between the antecedent and the relative. When you have a relative, aſk this queſtion, who or what? and the word that anſwers to the queſtion ſhall be the antecedent to it.

A relative ſentence is that which has in it the relative adjective, *who* or *which*. And the antecedent is the word going before the relative, and is rehearſed again of it, as, *this is the bird which you brought home*, i. e. *which bird you brought home*. The relative agrees with the antecedent in number and perſon, as, *that man is wiſe, who ſpeaketh few things*.

When there comes no nominative caſe between the relative and the verb, the relative ſhall be the nominative caſe to the verb, as, *wretched is he who is in love with money*.

Of ABBREVIATIONS.

BY theſe we expeditiouſly expreſs, or ſet down a word, by making ſome initial letter or letters, belonging to the word, to expreſs it; as in the table following.

A. for anſwer, or afternoon
A. B. Arts Bachelor
A. Bp. Arch Biſhop
Acct. Account
A. D. Anno Domini, year of our Lord
A. M. Anno mundi, year of the world
A. M. Artium Magiſter, maſter of arts.
Ana, of each a like quantity
Ap. April or Apoſtle
Adm. Admiral
Agt. Againſt
Amt. Amount
Anab. Anabaptiſt
Aug. Auguſt
A. R. Anno Regni, in the year of the reign
Aſt. P. G. Aſtronomy Profeſſor at Greſham college
Auſt. Auſtin or Auſtria
B. A. Bachelor of Arts
B. D. Bachelor of Divinity
B. V. Bleſſed Virgin
Bart. Baronet
Bp. Biſhop
Cant. Canticles, or Canterbury
Cat. Catechiſm
Cent. Centum
Cha. Chapter.
Ch. Church
Chanc. Chancellor

Chron.

Chron. Chronicles
Capt. Captain
Clem. Clement
Col. Coloſſians
Cl. Clericus
Co. Country
Coll. Colonel
Comrs. Commiſſioners
Con. Conſtantine
Conf. Confeſſor
Cor. Corinthians or Corollary
Cr. Creditor
C. R. Carolus Rex, or Charles the King
C. C. C. Corpus Chriſti College
C. S. Cuſtos Sigilli, keeper of the ſeal
C. P. S. Cuſtos Privati Sigilli, keeper of the privy ſeal
D. Dean or Duke
Dan. Daniel
Dr. Doctor or Debtor
Dea. Deacon
Do. Ditto
D. Denarii, Pence
Dec. or xber, or 10ber, December
Devon. Devonſhire
Deut. Deuteronomy
Dec. Deceaſed
D. C. Dean of Chriſt church
Doct. Doctrine
D. D. Doctor of Divinity
E. Earl
Earld. Earldom
Edm. Edmund
Edw. Edward
Ex. gr. Exempli gratia, for example
Engl. England
Eliz. Elizabeth
Eſa. Eſaiah
Eph. Epheſians
Eccl. Eccleſiaſtes
Ex. Exodus or Example
Ev. Evangeliſt
Exp. Explanation
Expo. Expoſition
Eſq. Eſquire
Exon. Exeter
Fr. French or France
Feb. February
Fra. Francis
F. R. S. Fellow of the Royal Society
Gal. Galatians
Gen. General
Geo. George
G. R. Georgius Rex, George the King
Gar. Garriſon
Gent. Gentleman
Goſp. Goſpel
Greg. Gregory
Hen. Henry
Hamp. Hamper
Hund. Hundred
Hum. Humphry
Heb. Hebrews
i. e. id eſt, that is
I. H. S. Jeſus Hominum Salvator, Jeſus Saviour of men
Ibid. Ibidem, in the ſame place
Id. Idem, the ſame
Inſt. Inſtance or Inſtant
Ja. James or Jacob
Jan. January
Jer. Jeremiah
Jeſ. Jeſus

Jud. Judges
Jn°. John
Is Isaac
J. D. Jurium Doctor, Doctor of Laws
Jos. Joshua
K. King
Km. Kingdom
Knt. Knight
L. Lord
l. liber, a book
L. Libræ, pounds
Lieut. Lieutenant
Lp. Lordship
L. L. D. Legum Doctor or Doctor of Laws
Lond. London
Lr. Letter
Lam. Lamentation
Lev. Leviticus
L. C. J. Lord Chief Justice
M. Marquis, Monday, or Morning
Mar. March
Mat. Matthew
m. Manipulus, a handful
M. A. Master of Arts
Maty. Majesty
Mad. Madam
Mons. Monsieur
Math. Mathematician
Mr. Master.
Mrs. Mistress
M. D. Medicinæ Doctor, Doctor of Physic
M. S. Memoriæ Sacrum, Sacred to the memory
MS. Manuscript
Min. Minister
MSS. Manuscripts
Mich. Michael or Michaelmas
N. Note
Nat. Nathaniel
N. B. Nota bene, note, or mark well
Nic. Nicholas
N. S. New Stile.
N°. Number
n. l. non liquet, it appears not
Nov. or 9ber, November
Oct. 8ber, October
O. Oliver
Obj. Objection
Obt. Obedient
O. W. Old word
O. S. Old Stile
Oxon. Oxford
P. Paul, Paulus, Publius or President
Pugil, a handful
Pen. Penelope
Pd. Paid
Par. Parish
Per, by the
Pat. Patience or Patrick
Per C. per Centum, by the hundred
Parl. Parliament
Pet. Peter
Phil. Philippians or Philip
Philo Math. Philo-Mathematicus, a lover of the Mathematics
P. M. G. Professor of Music at Gresham College
Prof. Th. G. Professor of divinity at Gresham College
Pris. Priscilla
Pr. Priest or Prince
Ps. Psalm
P. S. Postscript
Penult. last save one

Q. Queen, Query, or Queſtion
q quaſi, as it were
q. d. quaſi dicat, as if he ſhould ſay
q. l. quantum libet, as much as you pleaſe
q. ſ. quantum ſufficit, a ſufficient quantity
qr. Quarter, or a farthing
R. Reaſon
R. Rex, king; Regina, queen
Rev. Reverend
Revel. Revelation
Rich. Richard
Robt. Robert
Rog. Roger
Ret. Return
Reg. Prof. Regius Profeſſor
Rom. Romans
Rt. Honbl. Right Honourable
Rt. Worpl. Right Worſhipful
St. Saint
Sect. Section
Sept. or 7ber, September
Serj. Serjeant
serv. Servant
Shr. Shire
Salop, Shropſhire
Sol. Solution
Staff. Stafford
Sp. Spain or Spaniſh
Sr. Sir
ſs. Semiſſis, half a pound
S. S. T. P. Profeſſor, or a Doctor of Divinity
Stew. Steward
Tho. Thomas
Theſſ. Theſſalonians
The. Theophilus
To. Tobias
V. Virgin or verſe
U. Uſe
Ult. for Ultimus, the laſt
Vid. ſee
Ven. Venerable
Viz. Videlicit, to wit
V. gr. Verbi gratia. for example
Wm. William
Wp. Worſhip
Wpl. Worſhipful
W. R. William Rex
wn. when
Xn. Chriſtian
Xt. Chriſt
Xtopher, Chriſtopher
ye. the
yn. then
ym. them
yt. that
yr. your
&, et, and
&c. et cetera, and ſo forth, and the reſt

Before I proceed to writing, I ſhall give you an inſight of the ſtops and marks uſed in reading and writing.

Of Stops, Marks, and Points uſed in Reading and Writing; with their Places and Significations.

THESE are of abſolute neceſſity; and great regard ought to be had to them, to avoid confuſion and miſconſtruction, and for the better underſtanding of what we read and write ourſelves; and are likewiſe of uſe to others who ſhall hear us read, or ſee our writing: they teach us to obſerve proper diſtances of time, with the neceſſary raiſing and falling of the tone or voice, in reading, and the needful ſtops or marks to be uſed in writing, that we may underſtand it ourſelves, and that our meaning may not be miſunderſtood or miſapplied by others.

Stops, or pauſes, conſidered as intervals in reading, are no more than four; though there are other marks to be taken notice of, but to other purpoſes: the names of the four ſtops are, a *comma*, *ſemicolon*, *colon*, and *period*, or *full ſtop*; and theſe do bear to one another a kind of progreſſional proportion of time; for the *comma* ſignifies a ſtop of leiſurely telling one, the *ſemicolon* two, the *colon* three, and the *period* four.

——And are made or marked thus:

Comma (,) at the foot of a word.

Semicolon (;) a point over the comma.

Colon (:) two points.

Period (.) a ſingle point at the foot of a word.

, *Example of the* comma.) There is not any thing in the world, perhaps, that is more talked of, and leſs underſtood, than the buſineſs of a happy life.

; *Example of the* ſemicolon.) It is not a curſe that makes way for a bleſſing; the bare wiſh is an injury; the moderation of Antigonus was remarkable.

: *Example of the* colon.) A ſound mind is not to be ſhaken with popular applauſe: but anger is ſtartled at every accident.

. *Example of the* period.) It is a ſhame, ſays Fabius, for a commander to excuſe himſelf, by ſaying, I was not aware of it. A cruelty that was not only fit for Marius to ſuffer, Sylla to command, and Catiline to act.

By the examples foregoing, we may eaſily note, that a *comma* is a note of a ſhort ſtay between words in the ſentence; and therefore the tenour of the voice ought to be kept up.—The *ſemicolon* is a little longer, and the tone very little abated.—

bated.—The *colon* ſignifies perfect ſenſe, though not an end of the ſentence; and the voice a little abated, or let fall.—The *period* denotes perfect ſenſe, and the end of the ſentence.

? When the queſtion is aſked, there is a crooked mark made over the *period* thus ? and is called a note of interrogation: *example*, what could be happier than the ſtate of mankind, when people lived without either avarice or envy? the time of pauſe for this ſtop, is the ſame with the *ſemicolon*.

! If a ſudden crying out, or wondering be expreſſed, then this mark is made over the full ſtop, thus! and called a note of admiration, or exclamation: *example*, oh the aſtoniſhing wonders that are in the elementary world!

( ) If one ſentence be within another, of which it is no part, then 'tis placed between two ſemicircles or parentheſis, made thus ( ): *example*, *Pompey*, on the other ſide (that hardly ever ſpake in public without a bluſh) had a wonderful ſweetneſs of nature. Again; of authors, be ſure to make choice of the beſt, and (as I ſaid before) to ſtick cloſe to them. Once more, honour thy father and mother (which is the firſt commandment with promiſe) that it may be well with thee.—In reading a parentheſis, the tone muſt be ſomething lower, as a thing or matter that comes in by the bye, breaking in as it were in the main coherence of the period. The time is equal to a comma, and ought to be read pretty quick, leſt it detain the ear too long from the ſenſe of the more important matter.

' *Apoſtrophe* is a comma at the head of letters, ſignifying ſome letter or letters left out for quicker pronunciation, as *I'll*, for *I will*, *would'ſt* for *wouldeſt*, *ſhan't* for *ſhall not*, *ne'er*, for *never*, *is't*, for *is it*, *'tis* for *it is*, *i'th'* for *in the*, *o'er* for *over*: or to denote a genitive caſe; as, my father's houſe, or houſe of my Father; my uncle's wife, or wife of my uncle.

´ *Accent* is placed over a vowel, to denote that the ſtreſs or ſound in pronunciation is on that ſyllable.

˘ *Breve*, or a crooked mark over a vowel, ſignifies it muſt be ſounded ſhort or quick.

ʌ *Caret* ſignifies ſomething is wanting, and is placed underneath the line juſt where any thing, omitted by miſtake or forgetfulneſs, &c. ſhould be brought in.

Cir-

^ *Circumflex* is the same shape with the caret, but is placed over some vowel, to shew the syllable to be long, as *Eu-phrâ-tes.*

¨ *Dialysis*, or two points placed over two Vowels, in a word, signifies they are to be parted, being no diphthong.

- *Hyphen*, or *note of connection*, is a strait line; which being set at the end of a line, shews that the syllables of that word are parted, and the remainder of it is at the beginning of the next line; and sometimes is used in compound words, as, *burnt-sacrifices*, *heart-breaking*, *soul-saving*, *book-keeper*, &c. *N. B.* That when you have not room to write the whole word at the end of a line, but are obliged to finish it at the beginning of the next, such words must be truly divided, according to the rules of spelling; as, re-strain, not res-train. When the hyphen is placed over a vowel, it is properly a dash, and signifies the omission of *m* or *n*; 'tis much used in old Latin authors, and sometimes in English, especially in law business: *example*, it is very comedable to write a good hand.

☜ *Index*, is a note like a hand, pointing to something very remarkable.

* *Asterism*, or *star*, directs to some Remark in the margin, or at the foot of the Page. Several of them together denote something defective or immodest, in that passage of the author.

† *Obelisk*, is a mark like a dagger, and refers to the margin, as the asterism: and in dictionaries it signifies that word to be obsolete, or old, and out of use.

¶ *Paragraph*, denotes a division, comprehending several sentences under one head.

§ *Section*, signifies the beginning of a new head of discourse, and is used in sub dividing a chapter, or book into lesser parts or portions.

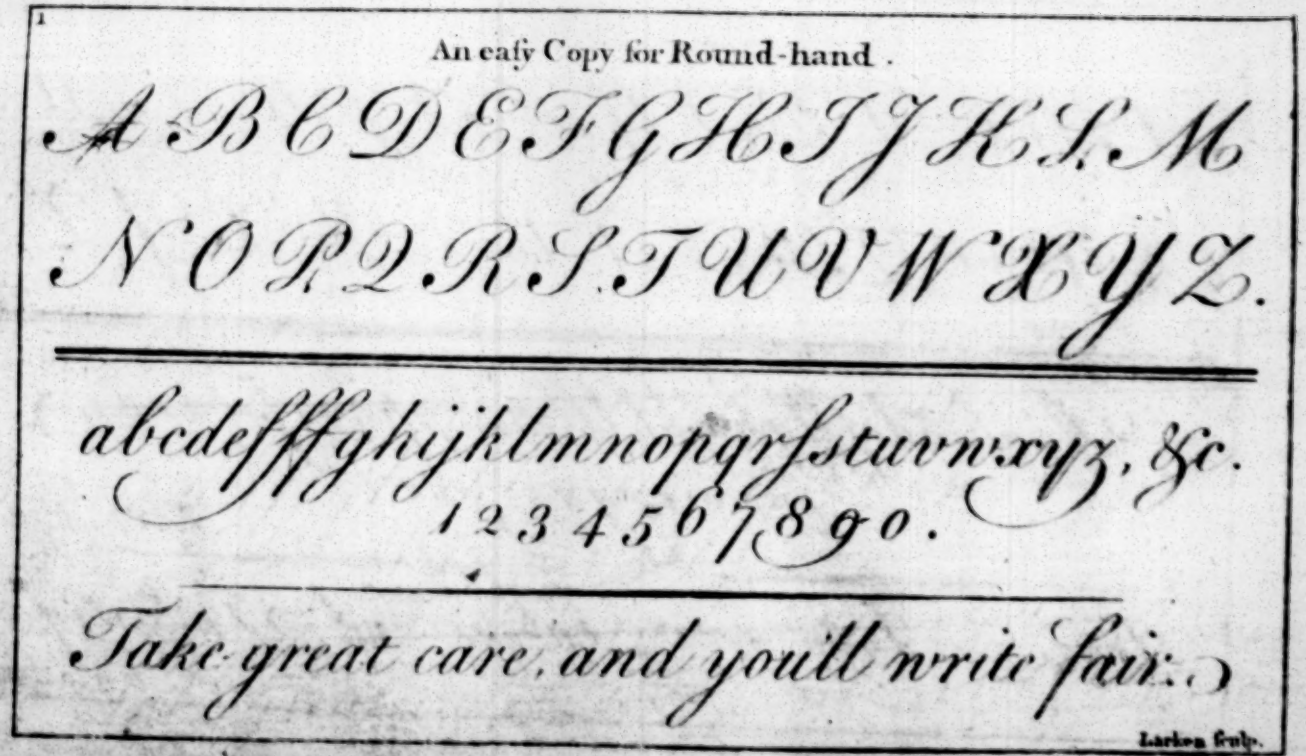
[ ] *Brackets*, or *crochets*, generally include a word or sentence, explanatory of what went before, or words of the same sense, which may be used in their stead.

" *Quotation*, or *double comma reverse*, is used at the beginning of the line, and shews what is quoted from an author to be his own words.

Thus much for pointing, stops, and marks; which, if carefully heeded and observed, will add grace and credit to your writing.

An

An easy Copy for Round-hand.



The Italian hand.

A B C D E F G H I J K L M

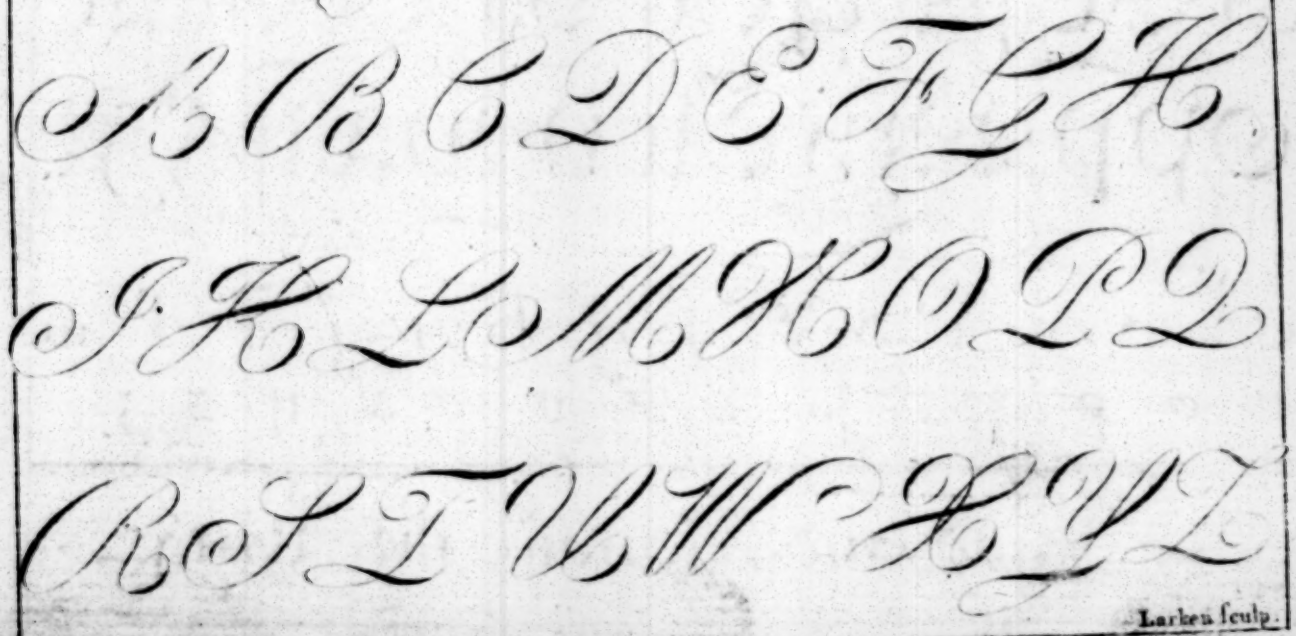
N O P Q R S T U V W X Y Z

A abcddeffghijkkllmnoppqqrssturv
vwwxxyyzz, &c.

Art is gain'd by great Labour and Industry.

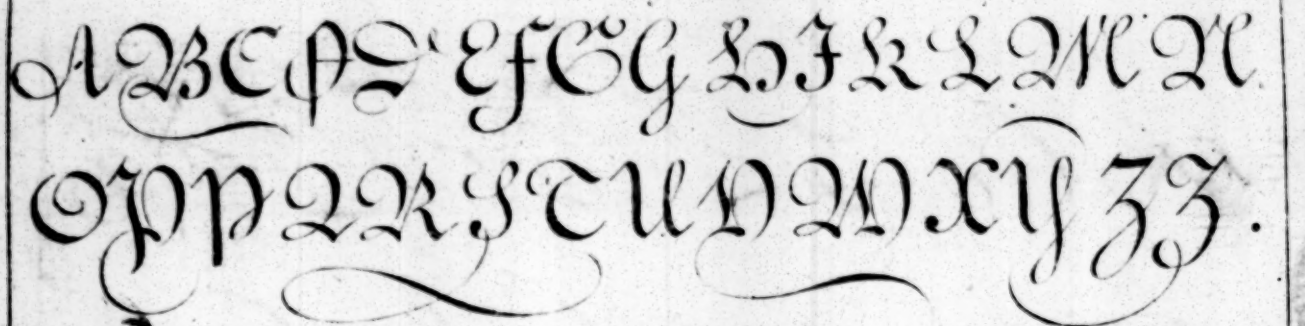
Larken sculp.

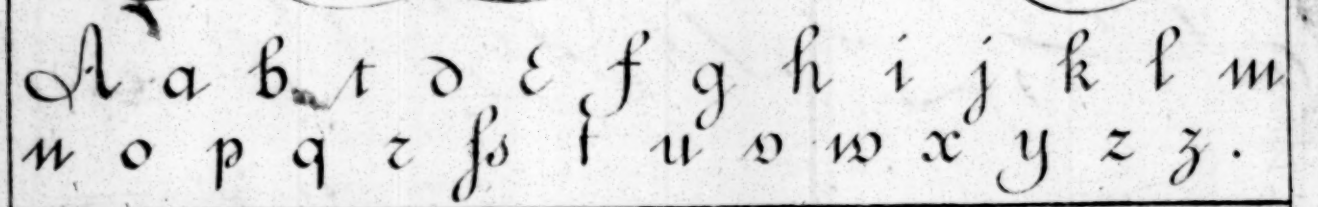
Flourishing Alphabet.



Larken sculp.

Secretary Hand





Fear God and Honour the King.

Larken sculp.

An INTRODUCTION *to the* ART *of*

WRITING.

HAVING given you a ſketch of grammar, I ſhall here endeavour to explain to you, in a ſhort and conciſe manner, the method to write well.

Having a book ruled, and being furniſhed with a good pen, lay your book directly before you; place your body ſtreight, with your right elbow towards your ſide, but not ſo cloſe as to touch it; hold the pen with the hollow directly downwards, between the thumb and fore finger; the joint of the thumb extending outwards, ſo that the tip of your thumb may be as much higher than your fore-finger, as the end of your fore-finger is above the end of your middle-finger; your fore-finger lying cloſe on the top of the pen, and your middle-finger almoſt ſtrait, and all of them ſo as that you may extend or draw them in at pleaſure. Reſt your hand on the end of your little finger, and do not graſp the pen too hard, nor hold it too upright or ſlooping, but let it reſt between the ſecond and third joints of your fore-finger, with the nib not ſo far from the end of your fingers as to weaken your command, nor ſo near as to ink them.

Stay your book with your left hand, letting your left elbow reſt on the table or deſk, not touching them with your breaſt, but ſit free and eaſy, avoiding all ill habits.

Thus being placed in a proper manner, with the pen held as before directed, firſt begin to make a ſmall *o*, then *a*, *c*, *d*, *g*, *q*, and *x*.

Having formed a proper idea of theſe letters, all which depend on *o*, proceed next to the *i*, then to its dependants *j*, *m*, *n*, *p*, *r*, *t*, *v*, *u*, *w* and *y*.

Theſe being formed in your memory, next go on to *l*, then to *b*, *h*, *f*, *ſ*, and ſo to *s*, and *x*. In this manner will you attain the knowledge of the whole alphabet.

Being perfect in making ſingle letters, next proceed to half joining, which is the joining each ſingle letter to *m*, *as*, *am*, *lm*, *em*, &c.

Next proceed to three letters, as, *and*, *but*, *cap*, &c.

Having a perfect knowledge of theſe, next learn capitals or great letters; and be ſure be perfect in one thing, before you go to another. And obſerve theſe rules, 1.

1. The heads of all letters which have not ſtems and tails, are of the ſame height at top and bottom.

2. Thoſe with ſtems above, as *l*, *k*, &c. are equal in length.

3. Thoſe below the line equal as *j*, *y*, &c.

4. The heads and tails of letters muſt not run into one another; therefore let your lines be diſtant from each other ſomewhat more than twice the length of the heads or tails.

Laſtly, Let your writing have a proper ſlope, and lean one way in round hand and Italian; and let your diſtance between word and word, be double to that between letters; and all ſtrokes drawn down-right, muſt be full; and all ſtrokes carried upwards, or croſs, muſt be fine.

Learn firſt the alphabet of letters ſmall,
And then proceed to letters capital;
Make all your joinings with a fine hair ſtroke,
View well your copy, ſit ſtreight to your book;
Write not too faſt, but make your letters well,
You'll be commended if you do excel.

How to make a Pen.

TAKE the firſt, ſecond or third quill in the wing of a gooſe or raven, clip and clean the beſt; when you have ſcraped off the thin rind thereof, with the back edge of your pen-knife, hold it in your left-hand with the feather end from you, then enter the back thereof ſloping, and cut off as much in length, as the quill is in breadth, and anſwer that with another cut on the inſide, oppoſite to the former; then turn the quill, and enter the edge of your pen-knife even in the back thereof, and exactly in the midſt of the half-round, neither inclining the blade one way or other, that the ſlit may not be made awry; then put in the peg of your knife haft (if it has one for that purpoſe) or the end of a whole quill, and with a ſudden twitch force up the ſlit, holding your left-hand thumb hard upon the back of the quill, to put a ſtop how far the ſlit ſhall go. This being done, enter your knife ſloping in the other ſide above the ſlit, about three times the breadth of the quill, and cut away the cradle piece; then turn the back upwards, and cut down to the end of the ſlit, the cheek or ſhoulder-pieces; and

nd in ſo doing, turn the knife on both ſides towards the ack. After this, place the inſide of the end or nib of the en, upon the nail of your left hand thumb, holding the uill faſt between the fore finger and middle of that hand. Laſtly, to finiſh the nib, enter the edge of the knife on the back, and near the end thereof ſloping, and immediately urning the edge almoſt downright, cut it off.

There are four conſiderations belonging to the quill.

1. If the quill be too hard, ſteep it a while in water.
2. If it be too ſoft, harden it with embers.
3. If it be too thick, pare a ſmall quantity from the back of the nib.
4. If it be too thin and weak, ſtrengthen the pen with a ſhort ſlit, a ſhort nib, and broad ſhoulder.

A Receipt for the beſt Black Ink.

TO ſix quarts of rain or river water, (but rain water is the beſt) put one pound and a half of freſh blue galls of Aleppo, (for thoſe of Smyrna are not ſtrong enough) bruiſed pretty ſmall; eight ounces of copperas, clean, rocky and green; eight ounces of clean, bright and clear gum arabick; and two ounces of roch allum: let theſe ſtand together in a large ſtone bottle, or clean ſtone pot, or earthen pot, with a narrow mouth to keep it free from duſt; ſhake, rowl or ſtir it well once every day, and you will have excellent ink in about a month's time, and the older it grows, the better it will be for uſe.

Ingredients for a Quart.

One quart of water, four ounces of galls, two ounces of copperas, and two ounces of gum, mixed and ſtirred as above.

To make London Ink-powder.

TAKE ten ounces of the cleareſt nut-galls, bruiſe them, and ſift the powder very fine, then add white copperas two ounces, Roman vitriol three ounces, gum arabick or ſandarack an ounce, bruiſe and ſift them very fine, ſo that though they appear white, a little being put into water, will in a little time turn it, and an ounce of powder will make a pint of very black ink.

To

To make Japan *or* Shining Ink.

TAKE gum arabick and Roman vitriol, of each an ounce, galls well bruiſed a pound, put them into rape vinegar, or vinegar made of clear ſmall beer; let them remain in a warm place, often ſtirring, till the liquor becomes black, then add to a gallon an ounce of ivory black and a quarter of a pint of ſeed-lac-varniſh, and it will be a curious black ſhining ink.

A Powder-Ink *to rub on Paper and write on.*

BRUISE about twenty nut galls, and half an ounce of Roman vitriol, as much gum arabick, and gum ſandarack, mingle theſe finely together, when well bruiſed and ſifted to a powder; rub the paper hard with it with cotton-wool, and poliſhing it with a piece of ivory, write with water, and in a little time the letters you write will appear a fair black, as if written with the beſt ink.

How to make Red Ink.

TAKE three pints of ſtale beer, rather than vinegar) and four ounces of ground brazil wood; ſimmer them together for an hour; then put in four ounces of roch alum; and theſe three are to ſimmer together for half an hour; and then ſtrain it through a flannel or rag; then bottle it up, and ſtop it down till uſed.

To keep Ink *from* Freezing *or* Moulding.

IN hard froſty weather, ink will be apt to freeze; which if once it doth, it will be good for nothing; for it takes away all its blackneſs and beauty: to prevent which, (if you have not the conveniency of keeping it warm, or from the cold) put a few drops of brandy, or other ſpirits, into it, and it will not freeze. And to hinder its moulding, put a little ſalt therein.

COPIES for WRITING:

Single Line Copies in Proſe, in Alphabetical Order.

A

ACQUAINTED ever be with good ſociety.
A virtuous woman is a crown to her huſband.

A blind man's wife needs no painting.
A good beginning often ends well.
A harlot's breath is the gate of death.
Art hath no greater enemy than ignorance.

B

Brave minds endure pain, contemn pleaſure.
By hammer and hand all arts do ſtand.
Beauty fadeth ſoon, like a roſe in June.
Be virtuouſly inclin'd in body ſoul and mind.
By conſtant amendment we riſe to preferment.
Bear always greateſt love unto thy God above.

C

Contentment is the greateſt of moral virtues.
Conceitedneſs of ourſelves is a great fault.
Courage overcomes the greateſt difficulties.
Content is to be valued above all things.
Courteſy and humility are marks of gentility.
Contentment is a kingdom to the mind.

D

Death will comfortably end a well ſpent life.
Delights, like phyſicians, leave us when dying.
Demean yourſelf prudently in every company.
Diſcreet let thy choice be of good ſociety.
Do unto others as thou would'ſt be done unto.
Diligence and ingenuity are handmaids to art.

E

Experience is a good thing if not bought too dear.
Envious men become their own tormentors.
Empty veſſels make the greateſt ſound.
Evil communications corrupt good manners.
Eternal joy remains to good men after pains.
Every purpoſe is eſtabliſhed by good counſel.

F

Fear of death is worſe than death itſelf.
Fair words are oft a cloak for bad actions.
Faith repreſents to thee a near eternity.
Faith is a gift divine, it makes the ſoul to ſhine.
Frequent commiſſion of ſin hardens men therein.
Friendſhip is mortal, but enmity immortal.

G

Good manners will procure reſpect at all times.
Go, ſluggard, to the bee, and ſee her induſtry.

Grief may ſhorten life as much as a diſeaſe.
Government cannot be maintained without rule.
Great things may fall by cauſes ſmall.
Glory is a great incitement to worthy actions.

H

Honour and virtue are the ornaments of the ſoul.
Honour father and mother, love ſiſter and brother.
How lovely it is to ſee brethren to agree.
Humility is the Highway to honour.
He enjoys enough who wants no more.
Humility of mind is a virtue moſt excellent.

I

In all friendſhip endeavour to avoid flattery.
Ingenuity is owing to nature, learning to education.
Idleneſs procures poverty, and lazineſs want.
In time of wealth deſpiſe not thy poor relations.
Induſtrious ever be to prevent miſery.
In bearing witneſs never tell a lye.

K

Knowledge and learning are preferable to riches.
Kind ſpeeches comfort the ſoul in heavineſs.
Kings may command but ſubjects muſt obey.
Knowledge of ourſelves requires great penetration.
Keep in remembrance the commands of God.
Know thy Creator in the days of thy youth.

L

Learn to employ and well improve your time.
Love makes the fouleſt things ſeem fair.
Learn by others vices how filthy are your own.
Let thy life ſober be; ſtrive for felicity.
Learning is pleaſant to an induſtrious mind.
Learn to live in love like the harmleſs dove.

M

Manners with learning make a gentleman.
Make no friendſhip with an angry man.
Momentary pleaſures are fading treaſures.
Much might be mended if carefully minded.
Many are the miſfortunes of this mortal life.
Make not a jeſt at another man's infirmity.

N

No man mortal can ſee God immortal.
Nothing is hard to a willing mind.

None

None are so deaf as they that will not hear.
Necessity is the mother of invention.
Never take in vain thy Maker's holy name.
Nothing can satisfy souls but the Deity.

O

Opportunity neglected brings severe repentance.
Opinion guides some men contrary to reason.
Our highest wisdom is to get eternal bliss.
Opportunity once lost is not easily regained.
Overcome thy propensity and proneness to vice.
Our love and charity God crowns eternally.

P

Perplexing cares do cause grey hairs.
Prize opportunity, improve it prudently.
Patience is a remedy for every misfortune.
Pry not into the secret affairs of other men.
Prudence patience, and piety are excellent graces.
Pray fervently each day to God to guide thy way.

Q

Quietness is commonly crowned with content.
Quantity without quality is nothing.
Quarrelsome persons are unsociable companions.
Quiet minds commonly enjoy content.
Quiet and patient be when God afflicteth thee.
Quarrels avoid, and fly from all bad company.

R

Religion and reason are guides to happiness
Riches too oft swell the mind with pride.
Remember thy last end; daily thy life amend.
Repentance is the consequence of wicked actions.
Rejoice not when thine enemy stumbleth.
Return the kindnesses that you receive.

S

Sin is the breach of God's commandments.
Sin and misery are the portion of mankind.
Shame, woe, and misery attend all villainy.
Service willingly offered is commonly refused.
Shun idleness and fly from ill society.
Security is the forerunner of calamity.

T

The glory of a good man is a good conscience.
The consequence of vice is ruin and destruction.

Truſt in the Lord with all thine heart.
The fear of the Lord is the beginning of wiſdom.
Thy joys ſhould reſt in thine own breaſt.
Time ſlides inſenſibly away without returning.

V

Vain compliments are but equivocations.
Vulgar perſons often form a wrong judgment.
Virtue is higher rais'd when it's extol'd and prais'd.
View well your copy, ſit ſtraight to your book.
Vanity is written upon all earthly enjoyments.

U

Undertake nothing without due conſideration:
Uſe and due exerciſe do art familiarize.
Uſe thy time carefully, think on eternity.
Unmannerly manners diſcredit their owners.
Uſe honeſt induſtry and God will thee ſupply.

W

What God hath will'd ſhall be fulfill'd.
Wealth gotten by vanity, ſhall be diminiſhed.
We ſhould bear patiently deſerved miſery.
Wiſe men conceal their own private misfortunes.
Wiſdom and virtue are the beauties of the ſoul.
Whoſo mocketh the poor reproacheth his Maker.

X

Xenocrates commended virtuous employments.
X, when it ſtands alone, for ten is to be known.
Xerxe's mighty hoſt was overthrown and loſt.
Xerxes commanded many thouſand Perſians.
Xenophon and Plato were great philoſophers.
X commandments contain our whole duty.

Y

Youth well inſtructed will hardly err.
Young men want experience to guide their actions.
Your precious time ſtrive to ſpend well.
Youth ſubject is to pride and to deſpiſe a guide.
You muſt not ſteal nor take another's right.

Z

Zeal with ſincerity ſhuns all hypocriſy.
Zealous and conſtant be in love and charity.
Zealouſly ſtrive your fellows to excel.
Zeal in a good cauſe is commendable.
Zeno choſe ſilence before any other virtue.

The Young Man's best Com

£ KLMNOPQRS

TUVWXYZÆ

abcdefghijklmnopqrstuv

wxyz&æ

Note, A neceſſary Qualification for Youth, is to imitate Print, that they may make neat Letters on Bales, Parcels, &c.

g thoroughly improved yourself in writing
be neceſſary to apply yourself to letter wri-
lone generally renders it familiar, you ſhould
rite upon different ſubjects, and great care
n to ſpell and point well. Is is moſt agreeable
r of tautology in them ſhould be avoided.
ey of inſtances would be unneceſſary, I have
you a ſketch of a few letters upon different ſub-
ay of example.

A Letter of Thanks from a Son to a Father.

ed Father,

ry to hear by Mr. Franklin, who arrived here
, of your bad ſtate of health, and ſhall be very
receive a letter of your amendment. I thank
ndly for the *Youth's faithful monitor: or, the
beſt companion*, that you ſent me, and propoſe
o peruſe it, eſpecially as the inſtructions contain-
e ſo uſeful and edifying. Pray remember my
mother, with love to my ſiſters.

I am, honoured Sir,
Your moſt dutiful ſon
James Green.

The Father's Anſwer.

Dear Son,

YOURS I received on Tueſday laſt, and now acquaint you that I am much better. Mr. Franklin informs me that he has enquired of your maſter how you improve in your learning: I am very glad to hear of your proficiency, and hope that by a conſtant perſeverance, you will in time be a ſcholar. Believe me, child, a man without learning ſeldom makes a figure in the world, and as no attainment can be made without ſome difficulty, I hope you will be aſſiduous for the little time you have to remain at ſchool. I have wrote to your maſter concerning your choice of books; and, as he knows your capacity, I am ſenſible he'll ſpare no pains to improve you.

I am, dear child,
Your loving father,
Ambroſe Green.

From

From a nephew to his uncle on buſineſs.

Honoured Uncle,

ACcording to your deſire before we parted, I have made all the enquiry I poſſibly could to trace the author that ſpread the report of your leaving off buſineſs. I am informed that it was your late apprentice, that ſerved his time with you; who did it with the intention to gain your cuſtomers from you. But I have diligently been with them all, and convinced them that there was no room for any ſuch report. Mr. Quill, the attorney, informs me, that it will bear an action; but knowing that you was not of a litigious diſpoſition, gave no particular orders to bring the perſon to juſtice. Whatever further commands you chuſe to lay on me, ſhall be ready at all times moſt punctually to comply with. I am,

S I R,

Your obedient nephew,
And humble ſervant,

James Pine.

The uncle's anſwer.

Nephew,

I Am glad to hear you have found out the perſon that endeavoured to prejudice me in trade; but of all the world I little ſuſpected the lad whom I ever treated in his apprenticeſhip like a child of my own. As to law, I am not fond of it, but ſhall take an opportunity of reproaching him with it openly, the firſt time I ſee him, and then leave him to himſelf, to receive the reward due to him for his ingratitude. I remain

Your loving and affectionate uncle,

Iſaac Jones.

From a niece to her aunt.

Madam,

THE kind treatment I met with from you, during the time I tarried with you in the country, can never be too gratefully acknowledged by me. I have informed my father and mother that you every day contributed to find out freſh amuſe-

amuſements for me, and not alone contented with that was continually loading me with freſh preſents. The country was by your means rendered ſo agreeable to me, that could have lived there for ever. But as my mother required my aſſiſtance in town, I thought my obedience ought, as part of my duty, to give way to my pleaſure. I am, Madam,

Your moſt reſpectful niece,
And very humble ſervant,
Jane Johnſon.

From a ſiſter in the country to her brother in London, complaining of his not writing.

Dear Brother,

THE pain you have given me by your long ſilence, is almoſt, I may ſay, inexcuſable. Could you but know the anxiety I have had in regard to all your welfares, you would not have neglected writing. But as I am inclinable to think that the hurry of buſineſs has prevented it, which if it be the caſe, you are not ſo much to blame. However, I beg I may hear from you ſoon, that I may not totally accuſe you of ingratitude. Pray give my duty to my papa and mama, and tell them, that as ſoon as the fine weather comes on, my uncle and aunt will expect them in the country. My love to my ſiſter, and compliments to all friends.

I am, dear brother,
Your loving ſiſter,
Mary Hill.

The anſwer.

Dear ſiſter,

YOurs I received, and ſhould ſtill have been happy to conceal the ſorrowful news from you; but a chriſtian like patience under afflictions, is a commendable Virtue. Not to keep you long in ſuſpence, your poor ſiſter is no more. I have endeavoured to comfort my father and mother under their misfortune, by telling them it is their duty to ſubmit, and to think themſelves happy in having a ſon and daughter yet left. In return they plead to me the promiſingneſs of her youth, the virtues of her mind

nd the genius of her underſtanding, makes their loſs unupportable. Had you been at home, you'd have been ſurprized to ſee with what fortitude ſhe met the king of terrors; nd as the ſight was too ſhocking for father and mother to ſuſtain, I and the nurſe remained in the room until ſhe expired; which ſhe did with a patience truly laudable: But here, my dear ſiſter, ſuffer me to draw a curtain over this gloomy ſcene. My father and mother ſend their bleſſing to you, as all friends do their love. Aſſure yourſelf,

I am, dear ſiſter,
Your afflicted brother,
Peter Hill.

A Letter with a Preſent.

My dear friend,

NOT to acknowledge the favours I have received from you, would be the greateſt ingratitude. I have in return ſent you a ſmall preſent, as a token of my friendſhip; which I hope will be no ways unacceptable to you. As this country abounds with variety of game, and having heard you ſay you were very fond of it, I hope the hare and partridges will be acceptable. I ſhould be glad of a line from you when it ſuits, and, depend upon it, you may at all times command,

My dear friend,
Your humble ſervant,
David Stanley.

A letter from a Gentleman at Liſbon, *to his Son in* London.

Dear ſon,

BEFORE you receive this from your unhappy father, you will have heard of the deſtruction of this place, and of the calamitous ſituation of its few remaining miſerable inhabitants. God in his infinite mercy protect us! All that you have heard will fall far ſhort of what I have ſeen, for no words have energy ſufficient to convey an idea of a ſcene ſo amazingly dreadful—Your poor mother no longer exiſts! Aſk me not for your ſiſters! And as for myſelf, I am a vagabond, and condemned to ſeek my bread from thoſe who can ill afford to feed me. *But the Lord gave, and the Lord*

Lord has taken away—I am satisfied—All may be for the best, and our friends are, I doubt not, removed to a more permanent city, whose foundations are not to be shaken, and where sorrow is no more. Let us, my dear child, prepare to follow them; and that we may do so let us live here that we may fear no dissolution, nor dread what may happen hereafter. Let us always be prepared for the worst, and not depend on a death bed repentance; for you see we have not a moment that we can call our own. St. Austin says, *We read of one man, that was saved at the last hour, that none may despair; and of but one, that none may presume.* How unsafe, how foolish therefore is it to put off that till to-morrow, which is so essentially necessary to be done to-day? To-morrow may never come! O think of that! You may be snatched away in an instant, as thousands here have been, for there is no withstanding the arm of the Almighty: No; the attempt would be vain, would be presumptuous, would be impious; and you will find, my dear son (I hope not too late) that the only security against accidents of this sort, is the leading a religious and good life. I am

Your truly affectionate father,

Henry Small.

From a Servant to his Master upon Business.

Sir,

AS you have continued in the country longer than you expected, I think it a necessary part of my duty to inform you that nothing has been neglected: I have received the goods from Coventry that you informed me of, and the best part of them are disposed of. I have used my utmost diligence to oblige your customers; and have observed the greatest punctuality in your books, which I hope upon your return, you'll find to your satisfaction. If any thing occurs to me contrary to your expectations, you may depend upon being informed of it, from, Sir,

Your most dutiful servant,

Timothy Looksharp.

P. S. I have settled with Mr. White, much to his satisfaction.

Having

Having given you a form for writing letters upon different ſubjects, it is neceſſary to ſhew you how to ſuperſcribe them, in order that due reſpect may be paid to your ſuperiors.

TERMS of ADDRESS,

To the Royal Family.

To the King's moſt excellent Majeſty. Sire, *or*, May it pleaſe your Majeſty.

To his Royal Highneſs *William*, Duke of *Cumberland*. May it pleaſe your Royal Highneſs.

To the Nobility.

To his Grace the Duke of *S.* My Lord Duke; your Grace.

To the moſt noble *Peter*, Marquiſs of *R.* My Lord Marquis; your Lordſhip.

To the Right Hon. *John*, Earl of *L.* My Lord; your Lordſhip.

To the Right Hon. *J.* Lord Viſcount *M.* The ſame.

To the Right Hon. *P.* Lord *O.* The ſame.

Here obſerve that noblemens wives are addreſſed equal to their huſbands dignity.

That all the ſons of *Dukes* and *Marquiſſes*, and the eldeſt ſons of *Earls*, have the titles of *Lord* and *Right Honourable*, by the courteſy of *England*.

To the ſons of *Viſcounts* and *Barons* are given the titles of *Eſquires* and *Honourable*; and that of *Honourable* likewiſe to their daughters but without any other addition.

Every *Gentleman*, in any place of honour or truſt, is ſtiled *Honourable*, but no *Commoners* (thoſe of his Majeſty's privy-council, the lord mayors of *London*, *York* and *Dublin*, and the lord provoſt of *Edinburgh*, for the time being, excepted) are ſtyled *Right honourable*.

Laſtly, every conſiderable *Servant* to his *Majeſty*, the Prince of *Wales*, or any other of the *Royal Family*, is, whilſt on the civil and military liſt, diſtinguiſhed by the title of *Eſquire*.

To the Parliament.

To the Right honourable the Lords ſpiritual and temporal, in Parliament of *Great Britain* aſſembled. My Lords; May it pleaſe your Lordſhips.

To the Hon. the knights, citizens and burgeſſes, in parliament

liament of *Great Britain* aſſembled. Gentlemen; May it pleaſe your Honours.

To the Right Honourable Sir *A. C.* Speaker of the honourable houſe of commons. Sir; or if he be a Lord, May it pleaſe your Lordſhip.

N. B. He is for the moſt part a member of the privy-council.

To the Clergy.

To the moſt Reverend Father in God, *A.* Lord Archbiſhop of *C.* or *Y.* My Lord, your Grace.

To the right reverend Father in God, *O.* Lord Biſhop of *L.* Right reverend Sir.

To the Rev. Mr. or Dr. (according to their ſtation) *A. Z.* Dean of *B.* Chancellor of *C.* Archdeacon of *D.* Prebendary of *E.* Rector of *F.* Vicar of *G.* Curate of *H.*

The general term to theſe is Sir; but to a Dean or Archdeacon we ſay, Mr: Dean, or Mr. Archdeacon.

All rector, vicars, curates and clergymen of other inferior denominations, are ſtiled Reverend.

To the Officers of his Majeſty's Houſhold.

To theſe we addreſs for the moſt part according to their quality, but ſometimes according to their office, as, My Lord Steward, My Lord Chamberlain, &c.

To the Commiſſioners, &c. on the civil Liſt.

To the Right Hon. *A.* Earl of *B.* Lord Privy Seal——Lord Preſident of the Council——Lord Great Chamberlain——Earl Marſhal of *England*——One of his Majeſty's Principal ſecretaries of ſtate, *&c.* My Lord; *or* May it pleaſe your Lordſhip.

To the Right Hon. the Lords Commiſſioners of the Treaſury——of the Admiralty, *&c.* The ſame.

To the Hon. the commiſſioners of his Majeſty's Cuſtoms——Revenue of Exciſe, *&c.* May it pleaſe your Honours.

To the Soldiery.

To the Right Hon. *A.* Earl of *B.* Capt. of his Majeſty's firſt Troop of Horſe Guards———Band of Gentlemen Penſioners, *&c.* To *A. B.* Eſq; Lieutenant General—Surveyor General of the Ordnance, *&c.* Your Honours.

To the Officers of the Navy.

To his Grace *A.* Duke of *B.* Lord High Admiral of *Great Britain.* Your Grace.

To

To vice-admirals, rear admirals and captains. Sir, or Your Honour; except they be noblemen.

To the Ambaſſadary.

To his Excellency Sir *A. B.* Bart. Envoy Extraordinary from his *Britannic* Majeſty to——Ambaſſador to——his Reſident at, *&c.* Your Excellency.

To Secretaries and Conſuls. Sir.

To the Judges and Lawyers.

To the Right Hon. *A.* Baron of *B.* Lord High Chancellor——Maſter of the Rolls——Lord Chief Juſtice of the King's Bench——Common Pleas. My Lord, your Lordſhip; and to ſuch as are only honourable——Sir, May it pleaſe you Sir: And the ſame to all other Graduates in the Law.

N. B. Every Barriſter is ſtiled Eſquire.

And all ſuch Gentlemen as are in commiſſion of the peace, are alſo ſtiled Eſquires, and addreſſed to as worſhipful; as are alſo Sheriffs and Recorders.

The Aldermen and Recorder of the City of London, and all Mayors of Corporations (the Lord Mayor only excepted) have the Title of Right Worſhipful.

Governors of Hoſpitals, Colleges, &c. are ſtiled Right Worſhipful, or only Worſhipful, according as their reſpective titles may be.

Bodies Corporate are ſtiled Honourable, and ſometimes Worſhipful.

A Baronet and a Knight are for the moſt part ſtiled Honourable, and their Wives have the Title of Ladies.

As to the addreſs made to Merchents, and other perſons in Trade, it is only Sir.

Sundry Forms of Receipts *and* Promiſory Notes.

RECEIVED the 7th of May, of Mr. John Beſt, ſeven pounds ten ſhillings, for my maſter Richard Thomas, on accompt,

per John Pitts.

£. 7 10 0

Received the 19 of May, 1765, of Mr. Joſeph Wells, ſeventy pounds four ſhillings, for my maſter, John Saycall, on accompt,

per Thomas Dale.

£. 70 4 0

Received the 10th of April, 1765, of Mr. Jacob Bathe, forty pounds twelve ſhillings and ſix pence, in full payment for my maſter John Moneyleſs,

per Joſ. Hart.

£. 40 12 6

Received the 12th of April, 1765, of Mr. John William and comp. three hundred pounds, for Mr. James Thomas and partners,

per John Timms.

£. 300 0 0

Received the 17th of April, 1765, of the honourable united Eaſt-India company, five thouſand pounds ſixteen ſhillings and four pence, for Mr. French and company,

per John Titus.

£. 5000 16 4

Received the 19th of April, 1765. of the governors and company of the bank of England, one thouſand pounds eighteen ſhillings and four pence, for Mr. Thomas Johnſon and company,

per James Adams.

£. 1000 18 4

Received the 26th of April, 1765, of the worſhipful company of mercers, eighty nine pound, for my father John Chriſtopher,

per Edward Chriſtopher.

£. 89 0 0

Received the 1ſt of May, 1765, of Mr. John Richards, twenty pounds for one quarter's rent, due at Michaelmas laſt, for my maſter, George Moneyleſs,

per John Lackwit.

£. 20 0 0

Variety

Various Forms of Acquittances, upon Receipt of Money, by Maſters and Men of Buſineſs themſelves.

Received the 5th of April, 1765, of Mr. John and Philip Shepperd, eight hundred and forty pounds, on accompt,

per Thomas Scott,

£. 840

Received the 6th of April, 1765, of the right honourable Simon Herd, Eſq; the ſum of four hundred and ſixty pounds, in full of all demands, for ſelf and company,

per William Bird.

£. 460

Received the 7th of April, 1765, of Mr. James Sampſon, forty pounds in full, for intereſt of ſix hundred pounds, due at Michaelmas laſt,

per John Smith.

£. 40

Received the 7th of April, 1765, of Mr. Thomas Love, twelve pound ten ſhillings, and allowed for taxes and repairs one pound, together the ſum of thirteen pounds ten ſhillings in full for a quarters rent, due at Michaels laſt,

per Job Pennyleſs.

£. 13 10

Promiſory Notes by Bankers, Apprentices and Servants.

Briſtol, May the 10th, 1765.

I promiſe to pay to the honourable Charles Dove, Eſq; or bearer on demand, fifty pounds for value received, for Sir Richard Jones and partners.

per Thomas Linnet.

£. 50

I promiſe to pay to Mr. James Sutton, or bearer, on demand, two hundred pounds for value received, for my maſter Mr. Walter Blackſtone,

per Stedman Wright.

£. 200

London, May the 11th, 1765.

I promiſe to pay the royal African company or bearer, on demand, five thouſand five hundred and fifty-five pounds fifteen ſhillings and ſix pence, for my maſters, George and James Ford,

per Thomas Thompſon.

£. 5555 15 6

Promiſory Notes for a Perſon's ſelf.

I promiſe to pay to Francis Bath or bearer, on demand, ten thouſand nine hundred and nine pounds nine ſhillings and nine pence, for value received. May 12th, 1765.

per Timothy Spendall.

£. 10909 9 9

London, May 14th, 1761.

I promiſe to pay Mr. Michael Uſher, caſhier of His Majeſty's revenue of exciſe, or order, forty days after date, nine hundred pound, for value received,

per William Barley.

£. 900

London, May 16th, 1765.

I promiſe to pay to John Peter, Eſq; or order, on demand, five hundred pounds, for value received,

per John Williams.

£. 500

I promiſe to pay to Nicholas Dove, Eſq; or order, the ſum of ninety pounds, on demand, after receipt of a bill of exchange, drawn the ninth current, by Humphry Trade on Henry Henly of Northampton, Mercer, for the like ſum payable to Titus Lovemony, Eſq; or order, which the ſaid Nicholas Dove has indorſed to me this 16th of May, 1765.

per James Tradewell.

£ 90

A promiſory note, mentioning order, is indorſable from one perſon to another, which is done by the preſent poſſeſſor's writing his name on the Back of it, and delivering it up to the party to whom he intends to aſſign over his property therein.

The delivering up a promiſory note to the perſon who ſigned it, is a ſufficient voucher of its being paid; nor is there need of writing a receipt thereon.

Promiſory notes and book debts, if not legally demanded in the ſpace of ſix years, cannot be recovered by law upon the Debtors pleading the ſtatute; but they are recoverable in Chancery.

If you keep a promiſory note, on demand, in your own hands above three days, and the perſon it is upon ſhould fail, the loſs will be your own; but if he fails within three days it will light in equity on the perſon that paid it you.

N. B. Obſerve in promiſory notes that the value received is mentioned, or they are of no force, and likewiſe the time of payment.

Precedents in law and buſineſs that perſons in general ought to be acquainted with.

A BILL *of* DEBT.

KNOW all men by theſe preſents, that I Paul Bell, of the county of Durham, Gent. do own and acknowledge myſelf juſtly to ſtand indebted to Abraham Smith, of the county of York, haberdaſher, the juſt ſum of thirty pounds of good and lawful money of Great Britain, and which I do hereby promiſe to pay unto him, the ſaid Abraham Smith, on the 17th of May, next enſuing the date hereof. Witneſs my hand this 24th day of May, in the year of our Lord 1765.

Paul Bell.

ANOTHER.

MEmorandum, that I Philip Spendall, of the pariſh of St. Ambroſe, Salter, do owe, and am indebted to Samuel Rogers of the ſaid place, mercer, the ſum of ninety-nine pounds of good and lawful money of Great Britain, which ſum I promiſe to pay to the ſaid Samuel Rogers, his executors, adminiſtrators, or aſſigns, on or before the 18th

day of May next. In witneſs whereof, I have ſet my hand and ſeal the 25th day of May, in the year of our Lord, 1765.

Phlip Spendall.

Signed, ſealed, and delivered,
(being firſt legally ſtamped)
in the preſence of
John Jones, Matthew Derby.

A form of a will, a man having no children.

IN the name of God. Amen. I Peter Baronet, of in the county of Yeoman, being of ſound and diſpoſing mind and memory, do make and ordain this my laſt will and teſtament in manner and form following; that is to ſay, *Imprimis*, I will that all my debts and funeral charges be paid and diſcharged by my executrix, herein after named: Item, I give and bequeath unto my couſin of the ſum of 12 pounds of lawful money of Great Britain. Item, I do give and demiſe unto my brother's ſon, all that cottage or tenement, ſituated in the pariſh of in the county of now in the occupation of in the cloſe adjoining to it, to the ſaid his heirs and aſſigns forever. Item, I do give unto my loving wife, Sarah Baronet, all the reſt of my goods and chattles, and perſonal eſtates whatſoever. Alſo I do give and demiſe unto Sarah my ſaid wife, her heirs and aſſigns forever, all my lands and tenements lying in the pariſh of in the county of and now in the ſeveral occupations of and or their under tenants; and alſo the meſſuage or tenement ſituated in the pariſh of in the ſaid town of and now in my own occupation, together with the orchard, and all other appurtenances thereunto belonging.

Laſtly, I do make and conſtitute Sarah my ſaid wife, executrix of this my laſt will and teſtament. In witneſs whereof I have hereunto ſet my hand and ſeal this day of in the year of our Lord 1765.

P. B. O.

Signed, ſealed, publiſhed and pronounced, by the ſaid Peter Baronet, as his laſt will and teſtament, in the preſence of us, who, in his preſence, and the preſence of each other, have hereunto ſubſcribed our names.

R. P. A. R. H. O.

A

A ſhort will in a legal form.

IN the name of God, amen. I A. B. of yeoman, being infirm in body, but in perfect health, do make and ordain this my laſt will and teſtament in form following: That is to ſay, I give and recommend my ſoul into the hand of almighty God that gave it, and my body I recommend to the earth to be decently interred at the diſcretion of my executrix. And touching ſuch worldly eſtate which it hath pleaſed God to bleſs me with, I will and bequeath in the following manner and form.

I bequeath to M. B. my dearly beloved wife, the ſum of five hundred pounds, of lawful money of Great Britain, to be raiſed and levied out of my eſtate; together with all my houſhold goods, debts and moveable affairs.

Alſo, I give to my well beloved daughter H. B. whom I likewiſe conſtitute, make and ordain, the ſole executrix of this my laſt will and teſtament, all and ſingular my lands, meſſuages and tenements, by her freely to be poſſeſſed and enjoyed; and I do hereby utterly diſallow, revoke and diſannul all and every other former teſtaments and wills by me in any ways before named, willed and bequeathed, ratifying and confirming this and no other to be my laſt will and teſtament. In witneſs whereof, I have hereunto ſet my hand and ſeal, this twelfth day of March, One thouſand ſeven hundred and ſixty-five.

Signed, ſealed, publiſhed and pronounced by the ſaid A. B. as his laſt will and teſtament, in the preſence of us who, in his preſence, and the preſence of each other, have hereunto ſubſcribed our names.

S. T.
W. I.
J. W.

The teſtator after taking off the ſeal, muſt in the preſence of the witneſſes, pronounce theſe words, *I publiſh and declare this to be my laſt will and teſtament.*

Note. Where a real eſtate is concerned, three witneſſes are abſolutely neceſſary to ſign it; but where it is a perſonal eſtate only, two may do. The law excepts wills from the duties of the ſtamp office.

A codicil, *or* ſchedule *to a Will, made after a will is ſealed.*

BE it known unto all men by theſe preſents, that I A. B. of yeoman, have made and declared my laſt will and teſtament in writing, bearing date, &c. I the ſaid A. B. do by theſe preſents contained in this codicil or ſchedule, confirm and ratify my ſaid laſt will; and do give and bequeath unto J. E. of, &c. and my will and meaning is that this codicil or ſchedule, be eſteemed and adjudged to be part and parcel of my ſaid will and teſtament, and that all things therein contained and mentioned, be faithfully performed in as full ample and perfect manner in every reſpect as if the ſame was ſo declared and ſet down in my ſaid will. In witneſs whereof, I, the ſaid A. B. have hereunto ſet my hand and ſeal the 30th of May, 1765.

A man may give his goods to any perſon by word of mouth, before three witneſſes, before his death, but it is much more ſecure to do it by deed of gift in writing in ſome ſuch like form as this following:

A deed of gift of goods.

TO all chriſtian people, unto whom this preſent writing ſhall come, I A. B. of ſend greeting. Know ye that I the ſaid A. B. for divers good cauſes and valuable conſiderations me hereunto moving, have given and granted, and by theſe preſents do give, grant, and confirm unto C. D. of all and ſingular, my goods, chattels, houſhold ſtuff, and all other my ſubſtance whatſoever, in whoſe hands, cuſtody, poſſeſſion, or keeping ſoever the ſame are, or can, or may be found. To have and to hold all and ſingular the ſaid goods, chattels and houſhold ſtuff whatſoever, of me A. B. unto the ſaid C. D. his executors, adminiſtrators and aſſigns, from henceforth to his and their own proper uſe and uſes, thereof and therewith to do, order, and diſpoſe at his or their wills and pleaſure, as of their own proper goods and chattels, freely and peaceably, and quietly, without any manner of lett, trouble or denial of me, the ſaid A. B. or any other perſon or perſons whatſoever, of all which premiſes, I, the ſaid A. B. have put the ſaid C. D.

in full and peaceable poſſeſſion by virtue hereof. In witneſs whereof, I, the ſaid A. B. have hereunto ſet my hand and ſeal the 28th of May, Anno Domini, 1765.

Sealed and delivered (being firſt legally ſtamped)
in the preſence of

INDENTURE *for an* APPRENTICE.

THIS indenture witneſſeth, that ſon of , &c. doth put himſelf apprentice to , Shoe-maker, to learn his art or myſtery, and with him after the manner of an apprentice to ſerve from the day of the date hereof, for and during the term of ſeven years next enſuing, during all which term the ſaid apprentice his ſaid maſter faithfully ſhall ſerve, his ſecrets keep, and all his lawful commands every where gladly do; he ſhall do no damage to his ſaid maſter, nor ſee it to be done by others, without letting or giving notice thereof to his ſaid maſter; he ſhall not waſte his maſter's goods, nor lend them unlawfully to any. He ſhall not commit fornication, nor contract matrimony during the ſaid term; he ſhall not play at cards, dice, or any other unlawful game, whereby his maſter may be damaged, with his own goods, nor the goods of others; he ſhall not abſent himſelf day or night from his ſaid maſter's ſervice unlawfully; or haunt ale houſes, taverns, or play-houſes; but in all things behave himſelf as a faithful apprentice, in the trade or myſtery he now followeth; and the ſaid maſter ſhall procure and provide for him ſufficient meat, drink, apparel, lodging, waſhing and all other neceſſaries, during the ſaid term. And for the true performance of all and every the ſaid covenants and agreements, either of the ſaid parties bindeth himſelf unto the other firmly by theſe preſents. In witneſs whereof, they have interchangeably ſet their hands and ſeals hereunto, this 20th day of September, in the 5th year of the reign of our ſovereign lord George III. king of Great Britain, France and Ireland, &c. and in the year of our Lord God, 1765.

The FORM *of a* LETTER *of* ATTORNEY, *to execute a particular Buſineſs.*

KNOW all men by theſe preſents, that I, A. B. of C, in the county of D, yeoman, for divers good cauſes and

and conſiderations, me hereunto moving, have made ordained, conſtituted and appointed, and by theſe preſents, do make, ordain, conſtitute and appoint my truſty friend I. K. of M. gent. my true and lawful attorney, for me, in my name and to my uſe, to aſk, demand, recover and receive of and from B. C. of, &c. the ſum of, &c. giving, and by theſe preſents, granting to my ſaid attorney my ſole and full power and authority, to take purſue and follow ſuch legal courſes for the recovery, receiving and obtaining of the ſame, as I myſelf might or could do, were I perſonally preſent; and upon the receipt of the ſame, acquittances, or other ſufficient diſcharges for me, and in my name, to make, ſign, ſeal and deliver; as alſo one or more attorney or attornies under him to ſubſtitute and appoint, and again at his pleaſure to revoke; and farther to do, perform and finiſh for me, and in my name, all and ſingular thing or things, which ſhall or may be neceſſary, touching and concerning the premiſes as fully, thoroughly, and entirely, as I the ſaid A. B. in my own perſon might, or could do, in or about the ſame; ratifying, allowing, and confirming whatſoever my ſaid attorney ſhall lawfully do, or cauſe to be done, in and about the execution of the premiſes, by virtue of theſe preſents. In witneſs whereof, I have hereunto ſet my hand and ſeal, the 12th day of September, in the 5th year of the reign of our ſovereign lord George III. by the grace of God, king of Great Britain, &c. and in the year of our Lord God 176[illegible].

Revocation *of a* Letter *of* Attorney.

KNOW all men by theſe preſents, that whereas I of in the county of yeoman, upon the truſt and confidence which I had in of , gent. by letter of attorney under my hand and ſeal, bearing date did make, ordain, conſtitute and appoint the ſaid my lawful attorney, for me, and in my name, and to my uſe, to aſk, demand, recover and receive, of and from bookſeller, the ſum of , as thereby more at large may appear: now know ye, that I the ſaid for divers good cauſes and conſiderations me hereunto moving, have, and by theſe preſents do revoke, diſannul and make void the ſaid letter of attorney, and all power and

and authority, therein to him the ſaid given.
In witneſs, &c.

LETTER *of* ATTORMEY *from a* SEAMAN.

KNOW all men by theſe preſents, that I, mariner, now belonging to his majeſty's ſhip the Ann, for divers good cauſes and conſiderations me hereunto moving, have, and by theſe preſent do make, ordain, conſtitute and appoint my truſty friend, , citizen and baker of Briſtol, my true and lawful attorney for me, and in my name, and for my uſe, to aſk, demand and receive of and from the right honourable the treaſurer or paymaſter of his majeſty's navy, and commiſſioners for prize money, and whom elſe it may concern; as well all ſuch wages and pay, bounty-money, prize-money, and all other ſum and ſums of money whatſoever, as now are, and which hereafter ſhall or may be due or payable unto me; alſo all ſuch penſions, ſallaries, ſmart-money, and all other monies and things whatſoever, which now, or at any time hereafter may, or ſhall be due to me for my ſervice, or otherwiſe, in any of his majeſty's ſhip or ſhips, frigates or veſſels: giving and hereby granting unto my ſaid attorney full and whole power to take, purſue, and follow ſuch legal ways and courſes for the recovery, obtaining, and diſcharging the ſaid ſum and ſums of money, or any of them, as I myſelf might, or could do, were I perſonally preſent. And I do hereby ratify, allow, and confirm all and whatſoever my ſaid attorney ſhall lawfully do, or cauſe to be done, in and about the execution of the premiſes, by virtue of theſe preſents. In witneſs, &c.

A BOND.

KNOW all men by theſe preſents, That I, (Robert Scott, in the county of Durham, merchant) am held, and firmly bound unto (James Syms of Doncaſter, in the county of York, Eſq;) in the ſum of (two hundred) pounds of good and lawful money of Great Britain, to be paid to the ſaid (James Syms) his heirs, executors, adminiſtrators, or aſſigns: to which payment, well and truly to be made, I bind myſelf, my heirs, executors, adminiſtrators, or aſſigns, firmly by theſe preſents. Sealed with my ſeal. Dated the (firſt day of June) in the 5th year of the reign of our ſovereign lord (George

(George III.) by the grace of God, king of Great Britain, France and Ireland, defender of the faith, and in the year of our Lord God, (1765)

The CONDITION.

THE Condition of this obligation is such, that if the above bounden (Robert Scott) his heirs, executors, or administrators, do well and truly pay, or cause to be paid, unto the above mentioned (James Syms) his executors, administrators, or assigns, the full sum of (one hundred) pounds, with lawful interest for the same, of good and lawful money of Great Britain, on the (first day of January next) ensuing the date hereof; then this obligation to be void, or else to remain in full force.

Robert Scott.

Sealed and delivered (being first legally stamped) in presence of
F. G. H. I.

*** When a bond is given in consideration of the value received, the bond is always to be made for double the value in the condition.

What is to be varied, and made agreeable to the circumstances before you, is in those words inserted between ().

A BILL *of* SALE.

KNOW all persons whom it may concern, That I [John Trader of Kendal, in the county of Westmoreland, weaver] for and in consideration of the sum of [one hundred pounds] of lawful money of Great Britain, to me in hand paid, by [Daniel Dike, of London, Esq; the receipt whereof I do hereby acknowledge, have bargained, sold and delivered, and by these presents according to the due form of law, do bargain, sell, and deliver unto the said [Daniel Dike] 4 pieces of Kendal cotton; one hundred pair mens hose, fifty womens ditto, fifteen boys ditto, sealed up with my seal; to have and to hold the said bargained premises, unto the said [Daniel Dike] his executors, administrators, and assigns for ever.— And I the said [John Trader] for myself, my executors and administrators, the said bargained premises unto the

the ſaid [Daniel Dike] his executors, adminiſtrators and aſſigns, againſt all perſons, ſhall and will warrant, and for ever defend, by theſe preſents: [*If the bargained premiſes be redeemable by a limitted time, a proviſo of this nature is added.*] Provided, nevertheleſs, that if I the ſaid [John Trader] my executors, adminiſtrators or aſſigns, or any of us, do, and ſhall well and truly pay, or cauſe to be paid unto the ſaid [Daniel Dike] his executors adminiſtrators or aſſigns, the ſum of [one hundred and three pounds] as principal and Intereſt, lawful money of Great Britain, on the [thirtieth of October next enſuing the date hereof] for redemption of the bargained premiſes; then this preſent bill of ſale ſhall be void, and of none effect; but if default be made in the payment of the ſaid [one hundred and three pounds] in part, or in the whole, contrary to the manner and form aforeſaid, that then it ſhall remain and be in full force and virtue. In witneſs whereof, I have hereunto ſet my hand and ſeal, the [twenty-ninth day of June] in the year of our Lord [1765.]

John Trade, [L. S.]

Sealed and delivered, &c.

A GENERAL RELEASE.

KNOW all men by theſe preſents, that I, [Thomas Stivens of London, grocer] have remiſſed, releaſed, and for ever quitted claim, and by theſe preſents do for me, my heirs, executors and adminiſtrators, remiſe, releaſe, and for ever quit claim, unto [Jeremiah Bucks, citizen and mercer of London] his heirs, executors and adminiſtrators, all and all manner of actions, cauſe and cauſes of actions, ſuits, bills, bonds, writings, obligatory debts, dues, duties, accompts, ſum and ſums of money, judgments, executions, extents, quarrels, controverſies, treſpaſſes, damages and demands whatſoever, both in law and equity, or otherwiſe howſoever, which againſt the ſaid [Jeremiah Bucks] I ever had, now have, and which I, my heirs, executors and adminiſtrators, ſhall, or may have, claim, challenge or demand, for or by reaſon, or means of any matter, cauſe or thing, from the beginning of the world, to the day of the date of theſe preſents. In witneſs whereof,

I have hereunto ſet my hand and ſeal, the [twelfth day of July] and in the year of our Lord [1765.]

Thomas Stivens. L. S.

Signed, ſealed and delivered [being firſt legally ſtamped] &c.

Of ARITHMETIC.

HAVING now given you a view of grammar, and the neceſſary precedents in law, &c. with different forms of various buſineſſes, we come next to ARITHMETIC, the knowledge of which is ſo neceſſary, that ſcarce any thing in *life*, and nothing in *trade*, can be done without it:

Therefore, let it be obſerved, that all numbers are generally expreſſed by, or compoſed of theſe characters following, *viz.*

One, two, three, four, five, ſix, ſeven, eight, nine, cypher.

1 2 3 4 5 6 7 8 9 0

Nine of theſe are called ſignificant figures, to diſtinguiſh them from the cypher, which of itſelf ſignifies nothing, but as it is placed (in whole numbers) ſerves to increaſe the value of the next figure or figures that ſtand before it, as 2 but two; but before the cypher thus 20, the two becomes twenty.

Any of the above nine figures or digits, have two values; one certain, and the other variable; the certain value is, when it ſtands by itſelf; the variable is when joined or placed with other figures or cyphers; for when any one of theſe figures ſtand alone, it ſignifies no more than its own ſimple value, as two is but two, 7 but ſeven, 8 but eight, &c. And this is the certain value of a figure; but when another figure or cypher is annexed, they then are increaſed in their value ten times, as 2, or 2 units or ones, to two tens or twenty; 7 to 7 tens, or ſeventy; 8 to 8 tens, or eighty; and thus, 23, twenty-three; 71, ſeventy-one; 86, eighty-ſix, &c. Again, if any of the ſaid figures ſtand

ſtand in the third place towards the left hand, they then ſignify ſo many hundreds, as ſingly they expreſs units or 1's, as 200 is two hundred 700 is ſeven hundred, 800 is eight hundred, &c. If any of them poſſeſs the fourth place towards the left hand, they are ſo many thouſands as they contain units; and ſo any other figure increaſes by a ten-fold proportion; from the right-hand to the left, according to the place it ſtands at; ſo that 2 may be but two, or twenty, two hundred, or two thouſand. In the firſt place 2; in the ſecond 20; in the third 200, and in the fourth 2000, &c.

Numeration Table.

12	11	10	9	8	7	6	5	4	3	2	1
C. Thouſ. of M.	X. Thouſ. of M.	Thouſ. of Mill.	C. of Mill.	Tens of Mill.	Millions	C. of Thouſ.	Tens of Thouſ.	Thouſands	Hundreds	Tens	Units
1	2	3	4	5	6	7	8	9	0	1	2
	1	2	3	4	5	6	7	8	9	0	1
		1	2	3	4	5	6	7	8	9	0
			1	2	3	4	5	6	7	8	9
				1	2	3	4	5	6	7	8
					1	2	3	4	5	6	7
						1	2	3	4	5	6
							1	2	3	4	5
								1	2	3	4
									1	2	3
										1	2
											1

Thouſ. of Millions	Millions	Thouſands	Units or Ones
123	456	789	012
12	345	678	901
1	234	567	890
	123	456	789
	12	345	678
	1	234	567
		123	456
		12	345
		1	234
			123
			12
			1

For the eaſier reading of any number, firſt get the words at the head of the table by heart; as units, tens, hundreds, thouſands, &c. and apply thus, 75, five units, five and ſeven tens, ſeventy, that is ſeventy-five. Again, 678; 8 units, eight, 7 tens, ſeventy; and ſix hundred, ſix

hundred, that is, ſix hundred and ſeventy eight. Once more, 3456; 6 units, ſix; 5 tens fifty; 4 hundred four hundred; 3 thouſand, three thouſand; together, three thouſand four hundred fifty-ſix. Read the fourth line of the table downwards, viz. 123456789; here the valuation of the figures is from the right-hand to the left, as 1 in the ninth is hundreds of millions, but to be read from the left hand to the right, thus, One hundred twenty-three millions, four hundred fifty-ſix thouſand, ſeven hundred eighty nine. But any number may yet be read more intelligibly, viz. by ſtops, thus, make a *comma* after every third figure or cypher, beginning at the right-hand, and ſo on towards the left, making a ſtop after every third figure or cypher, as aforeſaid; thereby diſtinguiſhing every third place into hundreds, as hundreds of units, hundreds of thouſands, hundreds of millions, and hundred thouſands of millions, &c. and for trial let us read the firſt line of the table; the laſt place in valuation is hundred thouſands of millions, and to be pointed into periods thus, 123, 456, 789, 012; and read thus, One hundred twenty-three thouſand, four hundred fifty-ſix millions, ſeven hundred eighty nine thouſand and twelve; that is, no hundreds but twelve. Again, read the following number, viz. 276,245,678,-921,460; here the firſt point or period is betwixt 4 and 1, and the laſt between 2 and 6, and to be read thus; 267 millions of millions, 245 thouſands of millions, 678 millions, 921 thouſands, 460 units or ones. And thus may any number be read with eaſe, though a large one: And thus are large numbers or ſums expreſſed, or ſet out in the Exchequer, Bank and Lottery Tickets, &c. as thus, Numb. 224,156,—19,478,—and 420,000, &c. The foregoing table of numeration is on the right-hand diſtanced out in periods, for the eaſier reading thereof.

It ſometimes occurs in mathematical calculations, that the numbers of places of figures extend to 20, 30, 40, and even to a 100 places of figures or more: To read or numerate ſuch long line or lines of figures, the following ſhort rule and example will ſhew. Rule, begin at the right hand and count off ſeven places of figures to the left-hand, which is the period of millions, which mark directly over it with the figure 1, from that mark count ſix places more to the left-hand, over which make the mark 2, that

2, that is the period of millions of millions, or for ſhortneſs call billions; count ſtill 6 places of figures more to the left-hand, and mark it with the figure 3, that is the period of millions of millions of millions, or ſhorter trillions; 6 places further, on the ſame way, mark with a figure 4, that is the period of quadrillions, and ſo on by periods of ſix places of figures, marking them ſucceſſively with following numbers you may read quintillions, ſexillions, ſeptillions, octillions, nonillions, decillions, &c.

3 2 1

1 8 4 4 6 7 4 4 0 7 3 7 0 9 5 5 1 6 1 5

Thus to be read; eighteen trillions, four hundred forty-ſix thouſand ſeven hundred and forty-four billions, ſeventy-three thouſand ſeven hundred and nine millions, five hundred fifty-one thouſand, ſix hundred and fifteen.

Of numerical Letters.

Sometimes numbers are expreſſed by letters, eſpecially in the bible, to ſignify the chapter or pſalm; at the bottoms of title pages of books for the date of the year, and frequently in inſcriptions on funeral monuments, &c. for which reaſon it is neceſſary to know how to read them, therefore obſerve, that I ſtands for 1, or an unit, II for 2, III for 3. IV for 4, V for 5, VI for 6, VII for 7, VIII for 8, IX for 9, X for 10, XI for 11, XII for 12, XIII for 13, XIV for 14, XV for 15, XVI for 16, XVII for 17, XVIII for 18, XIX for 19, XX for 20, XXI for 21, &c. XXX for 30, XXXI for 31, &c. LX for 40, XLV for 45, &c. L. for 50 LI for 51, &c. LX for 60. LXI for 61, &c. LXX for 70, LXXI for 71, &c. LXXX for 80, LXXXI for 81, &c. XC. for 90, XCI for 91, &c. C for 100. CC for 200, CCC for 300, CCCC for 400, D or IↃ for 500, DC for 600, &c. M or CIↃ 1000, &c. Thus the preſent year 1766 is wrote, MDCCLXVI.

ADDITION.

IS the putting two or more ſums or numbers together, thereby to make one whole or total ſum.

Here we muſt always obſerve to ſet the numbers to be added orderly one under the other, that is, units under

units, tens under tens, hundreds under hundreds, &c. as in the ſubſequent examples.

Addition of Numbers of one Denomination.

years.	tuns.	gallons.
29	647	6742
36	598	9846
48	423	3195
54	345	246
27	567	68
33	678	9
227	3258	20106

In addition of integers (or ſimple numbers) whether it be money, meaſure, weight time, or any thing elſe.

Remember always to carry as many ones as there are tens in the row of figures, being units, to the next row of tens, &c. and whatever it amounts to, you muſt inſert at the bottom of each row, remembering to place units under the place of units, tens under the place of tens, &c.

Then in caſting up each example, to find its total value, I begin at the right-hand, or row of units, of the firſt example, and ſay 3 and ſeven is 10, and 4 is 14, and 8 is 22, and 6 is 28, and 9 is 37, in which there are 3 tens and 7 over, therefore I ſet down 7 juſt under its own rank, and carry 3 to the next row, and ſay, 3 that I carry and 3 is 6, and 2 is 8, and 5 is 13, and 4 is 17, and 3 is 20, and 2 is 22, and it being the laſt row, I ſet down the amount, viz. 22, ſo that the whole number of years is found to be 227.

And the next or ſecond example, is found by the ſame method to be 3258. And in the third and laſt example, the total number is found to be 20106. And ſo the total of any other example of the ſame kind, *viz.* ſimple numbers of one denomination may be found. *Note*, That when any of the ranks amount to juſt 10, 20, 30, 40, 50, &c. then you muſt ſet down the 0, under its proper rank, and carry either 1, 2, 3, 4, or 5, according to the number of tens that you find to the next row; and ſo you muſt always do, when it ſo happens, whether in the firſt, ſecond, or third row, or in any other except the laſt, where what it amounts to

to muſt be ſet down without any reſerve or carriage in the mind, becauſe there is no other row or rank to carry to, as was hinted before.

Addition may be proved two ways, firſt when you have caſt up any ſum as before directed, then begin at the top and caſt downwards, inſtead of upwards; and if the figures come the ſame, no doubt the work is right: Beſides, in things requiring care, they ought to be caſt firſt upwards and then downwards.

The ſecond way is chiefly for learners, being cuſtomary in moſt ſchools to teach it, which is the cutting off the top line by a ſtroke thus ———

For proof thereof, ſhall take the firſt queſtion, which amounts to 227.

29

36
48
54
27
33

2272 Anſwer

198 Add this to the top 29

227 Proof

Having caſt the ſum up again, as I did at firſt, I now begin again the ſecond time, only inſtead of going to the top of all, caſt no further than the 6 (leaving out all the figures that are cut off, or ſtand above the line) and find it amount to 198, which I place under 227; laſtly, I add this middle line 198, to the top line 29, and find they make juſt 227, which proves the firſt work to be right.

Addition of Money.

At	Farthings	ſtop at	4
	Pence		12
	Shillings		20
	Pounds		10

Note,

Note 1ſt.

$\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$ } Signify { One farthing, or one quarter. Two farthings, or two quarters. Three farthings, or three quarters.

Note 2d, L ſtands for pounds, S for ſhillings, D for pence; or thus l. s. d. pounds. ſhillings, pence.

But before you proceed, get the following tables by heart.

d.		l.	s.	d.
20	is	0	1	8
30	—	0	2	6
40	—	0	3	4
50	—	0	4	2
60	—	0	5	0
70	—	0	5	10
80	—	0	6	8
90	—	0	7	6
100	—	0	8	4
200	—	0	16	8
300	—	1	13	4

s.		l.	s.
30	is	1	10
40	—	2	0
50	—	2	10
60	—	3	0
70	—	3	10
80	—	4	0
90	—	4	10
100	—	5	0
200	—	10	0
300	—	15	0
400	—	20	0

Note, Perſons may improve themſelves very much in reckoning up divers things, after they have by heart the tables aforeſaid, and learned this rule of addition.

As 100 yards of tape at one penny the yard, the table tells you it comes to 8s. 4d.

An hundred yards of galloom, at one penny half-penny the yard.

In the table 100d. is	—— ——	8s. 4d.
And half that ſum is	—— ——	4s. 2d.
	Anſwer	12s. 6d.

Now you have by heart the tables, you may caſt up any ſum of money without dotting, for when you know the number of pence, you may, by this table, know how many ſhillings to carry to the ſhillings place. And for the number of ſhillings in the row of ſhillings, you know that 70 ſhillings is 3l. 10s.

(10)	(20)	(12)	
l.	s	d.	
17	16.	1	
29	11.	7.	
23	18.	9.	
73	17	10	
136	4	3	

12 ſet over the pence, ſhews that for every 12 I find in the pence row, I am to carry 1 to the ſhillings; for ſo many 20s. I find in the ſhillings row, 1 to the place of pounds as aforeſaid.

But the eaſieſt way of caſting up this ſum (for the young learner) is by uſing dots, as thus:

Beginning at the pence; I ſay 10d. and 9d. is 19d. where againſt the 9 I ſet a dot for 12d. [or you may make your dots upon waſte paper] and what is more or above 12 I carry to the next figure, *viz.* 7, and it makes 14, where I ſet a dot alſo for 12, and carry the remaining 2 to the 1 on the top, makes 3, which 3d. I ſet between the lines, as you ſee in the example.

Next I look how many dots there are, and find 2, which I carry to the row of ſhillings, ſaying 2 that I carry and 17 is 19, and 18 is 37, where againſt the 18 I ſet a dot for 20s. or 1l. and carry the 17s. upwards, ſaying 17s. I carry and 11 is 28, where I ſet a dot againſt the 11, for another 20s. and carry the remaining 8 to the 16 on the top, ſaying 8 I carry and 16 makes 24s. where I ſet down a dot for 20s. and ſet between the lines the remaining 4s. under the row of ſhillings.

Note. That you may ſum up the ſhillings row without dotting; thus, ſaying 2s. I carry from the place of pence and 7 is 9, and 8 is 17, and 1 is 18, and 6 is 24, and 10 is 34, and 10 is 44, and 10 is 54, and 10 is 64, that is 3l. 4s. then the 4s. being ſet between the lines, the 3l. are to be carried to the pounds.

Laſtly, The 3 dots for the 3l. found in the place of ſhillings, I carry to the pounds, ſaying 3 that I carry and 3 is 6, and 3 is 9, and 7 on the top makes 16, the remaining 6 I ſet between the lines, under the firſt row of the pounds, and I carry one to the laſt row, ſaying, 1 that I carry and 7 is 8, and 2 is 10, and 2 is 12, and 1 is 13, which being ſet between the lines, the whole ſum comes to 136l. 4s. 3d.

Note, That when you are to write a bill of ſeveral ſmall parcels, begin it in order of pounds, ſhillings, and pence, o : 3 : 9, and when you are to ſet down 16d. ſet down 1s. 4d. or to ſet down 23s. you muſt ſet 1l. 3s. 0d.

If

If a man owes me the three following ſums of money, what come they to in the whole?

l.	s.	d.	
202	17	7½	
703	1	9	
906	10	1¼	
1812	9	5¾	

Note, That the 7d. ½ is ſeven pence half penny; and 1d. ¼ is one penny farthing; and in the total ſum between the lines 5d. ¾ is five pence three farthings.

To caſt up three ſums I do thus; the ¼ which is the farthing, and the ½ the half penny, make ¾ or three farthings, which is ſet between the lines; next 1d. and 9d. is 10d. and 7d. is 17d. where againſt the 7 is ſet a dot for 12d. and ſet the odd 5d. between the lines.

Next, I that I carry from the place of pence, and 10s. is 11, and 1 is 12, and 17s. is 29s. I ſet down the remaining 9s. between the lines, and the 20s. making 1l. I carry to the place of pounds;

Saying, 1 I carry and 6 is 7, and 3 is 10, and 2 is 12, where I ſet a dot for 10, and ſet the remaining two between the lines.

Next, I carry the dot for 10, as 1, to the middle row, [being all cyphers] it is but 1 ſtill, ſo I ſet the 1 under the row of cyphers, and proceed to the laſt row;

Saying 9 and 7 is 16, and 2 at the top is 18, which I ſet between the lines, and the whole ſum comes to 1812l. 9s. 5d. ¾

(1)

Due to	l.	s.	d.
Mr. Strongman	4	12	6
Mr. Benſon	7	6	9
Mr. Coxcomb	4	12	0
Mr. Danielſon	6	17	7
Mr. Eaſon	5	6	6
Mr. Fletcher	4	12	3
Mr. Grayhead	6	0	0
Mr. Fellows	5	15	4
	45	2	11

I begin and ſay 4 and 3 is 7, and 6 is 13, and 7 is 20, and 9 is 29, and 6 makes 35d. Now 30d. according to the table

table is 2s. 6d. and 5d. makes 2s. 11d. I ſet down 11 exactly under the rank of pence, and ſay 2s. that I carry (which I do to the rank of ſhillings) and 5 is ſeven, and 2 is 9 (for I only take the unit rank of ſhillings) and 6 is 15, and 7 makes 22, and 2 is 24, and 6 is 30, and 2 makes 32, and now being come to the top of the ſum, and it making 32, I come down with the tens of ſhillings, ſaying, 32 and 10 is 42, and 10 is 52, and 10 is 62, and 10 is 72, and 10 makes 82s. and the table tells me that 80s. is 4l. I know therefore that 82s. is 4l. 2s. wherefore I ſet down the remaining 2s. juſt under the row of ſhillings, and carry 4l, to the pounds; ſaying 4 that I carry and 5 is 9, and 6 is 15, and 4 is 19, and 5 is 24, and 6 is 30, and 4 is 34, and 7 is 41, and 4 makes 45l. ſo that the total of thoſe ſeveral ſums of money due to thoſe ſeveral perſons, amounts to 45l. 2s. 11d. as in the example.

(2)

		l.	s.	d.
Received from	W. X.	49	10	0
	R. T.	74	16	9
	M. N.	46	18	0
	P. L.	60	12	0
	S. H.	92	16	3
	T. B.	80	17	0
	C. R.	26	12	6
	Y. R.	64	10	4
		496	12	10

In the ſecond example of money received, I begin at the right hand, and ſay 4 and 6 is 10, and 3 is 13, and 9 makes 22, and 22d. being 1s. 10d. I ſet down 10, and carry 1 to the ſhillings; ſaying 1 that I carry and 2 is three, and 7 is 10, and 6 is 16, and 2 is 18, and 8 is 26, and 6 makes 32; then I come down with the tens, ſaying 32 and 10 makes 42, &c. and I find at the bottom it comes to 112 s. which making 5l. 12s. I ſet down 12s. and carry 5l. to the pounds, ſaying, 5 that I carry and 4 is 9, &c. I find that at the top it amounts to 36, wherefore I ſet down 6 exactly under its own rank, *viz.* the rank of units of pounds, and carry 3 for the tens that are in 36 (for at all times in the firſt denomination of addition, whether of money, meaſure or weight; that is in the denomination of pounds, yards, or

tuns,

tuns, you muſt caſt them up as ſums of one denomination; that is, for every 10 carrying 1 to the next, &c.) ſaying 3 that I carry and 6 is 9, and 2 is 11, and 8 is 19, &c. and find that at the top it comes to 49; wherefore I ſet down 49 before the 6. and the total amounts to 4961. 12s. 10d.

More Examples for Practice.

10	20	12 4	10	20	12 4	10	20	12
l.	s.	d.	l.	s.	d.	l.	s.	d
17	12	6 ½	146	12	3 ½	4	10	6
20	10	2	278	10	9	0	7	9
50	0	0	46	16	6	1	0	0
44	12	8 ½	100	0	0	1	1	0
60	14	0	72	10	4	0	4	6
29	16	6 ¾	69	16	6 ¾	0	10	0
16	10	0	460	2	6	4	14	4
20	0	0	49	10	0	0	7	6
27	11	4 ½	17	4	0	0	1	6
17	4	0	22	10	0	0	2	6
20	10	3	164	12	9	3	10	9
46	16	8	75	10	4	1	10	0
Total 371	18	3	1503	16	0 ¼	18	0	4

Addition of Cloth Measure.

The table is as follows, *viz.*

4 nails make 1 quarter of a yard, marked n. nails.
3 quarters or 12 nails, 1 ell Flemiſh — qrs. quarters.
4 quarters or 16 nails, 1 yard
5 quarters or 20 nails, 1 ell Engliſh.

Examples.

10	3	4	10	4	4	10	5	4
el. fle.	qrs.	n.	yds.	qrs.	n.	el. en.	qrs.	n.
674	2	3	327	3	2	564	4	3
457	2	2	132	2	1	485	3	1
468	1	3	284	3	2	648	2	2
219	2	1	457	2	3	754	3	1
1821	0	1	1203	0	0	2453	3	3

In

In the firſt example, I begin at the right hand, and ſtop at every 4, becauſe 4 nails make 1 quarter, and ſay 1 and 3 makes 4, and 2 is 6, and 3 is 9, therefore I find there are 2 fours and 1 over, which I ſet down under the place of nails, then I carry 2 to the place of quarters, and ſay 2 and 2 is 4, and 1 is 5, and 2 is 7, and 2 is 9; then I find 3 threes in 9, and nothing over, wherefore I put 0, and carry 3 to the place of integers (or ells Flemiſh) and ſay 3 and 9 is 12, and 8 is 20, and 7 is 27, and 4 is 31; then I ſet down 1 and carry 3 to the next row, and ſay 3 and 1 is 4, and 6 is ten, and 5 is 15, and 7 is 22, then I put down 2, and carry 2, and ſay 2 and 2 is 4, and 4 is 8, and 4 is 12, and 6 is 18, then I put down the whole 18, which makes 1821 ells Flem. 0 qrs. 1 nail; and ſo of the reſt.

Dry Measure.

2 pints	make	1 quart.
2 quarts	—	1 pottle
2 pottles	—	1 gallon.
2 gallons	—	1 peck.
4 pecks	—	1 buſhel.
4 buſhels	—	1 coomb.
4 coombs	—	1 quarter.
4 quarters	—	1 chaldron.
5 quarters	—	1 wey.
2 weys	—	1 laſt.

Note, 5 pecks, one buſhel, water meaſure; 36 buſhels, one chaldron of coals in the pool (or river) of London.

Examples.

10 Laſts	2 wys.	5 qrs.	2 coo.	4 buſh.	4 pks.	10 Chal.	4 qrs.	2 coo.	4 buſh.	4 pks
47	1	4	1	3	2	28	3	1	3	2
36	1	3	0	2	3	33	2	1	2	3
28	0	2	1	3	2	27	3	1	3	1
113	0	1	0	1	3	90	2	1	1	2

Addition *of Avoirdupois Weight.*

By this weight are weighed all kind of grocery goods or wares, or goods ſubject to waſte; as tobacco, ſugar, fruit and drugs; as alſo butter, cheeſe, allum, tallow, fleſh, iron, braſs, copper, lead, tin, or pewter, pitch, tar, roſin, hemp, flax, ſoap, ſalt, and all kind of garbled goods; that is, thoſe goods that have duſt, droſs or waſte.

A Table of this Weight is as follows, viz.

16 drams is 1 ounce, marked ———	dr. drams
16 ounces 1 pound ——— ———	oz. ounces
28 pounds 1 quarter of a hundred weight ——— ———	lb. pounds qr. quarters
4 quarters 1 hundred weight ———	C. hundreds
20 hundred weight 1 ton wt. ———	T. ton.

Small Weight.

		28			28	16			28			16
C.	q.	lb.	C.	q.	lb.	oz.	C.	q.	lb.	lb.	oz.	dr.
4	1	6	24	1	12	4	9	1	0	8	10	12
6	2	16	42	2	0	11	4	3	2	5	8	7
5	3	24	36	1	12	12	7	1	27	6	4	9
7	2	0	25	3	24	13	5	3	19	7	13	11
6	0	20	19	0	20	10	4	3	26	8	15	13
9	1	12	26	1	22	14	2	2	0	7	11	15
39	3	22	154	3	10	0	34	3	18	45	1	3

In the firſt of theſe examples, I begin at the right hand, to wit, at the denomination of pounds, and ſtop at every 28, ſo many pounds making a quarter, that is, at every 28 I make a dot, and I find two 28's and 22 lb. over; wherefore I ſet down 22, and carry 2qrs. to the quarters, and adding them up find them 11, which is 2 C and 3 qrs. over; wherefore I ſet down 3, and carry 2 to the hundreds, which alſo added up, makes 39, ſo that the total weight is 39C. 3qrs. 22lb. &c.

Becauſe grocers ſend out ſmall parcels weekly by the carrier, they commonly write the bills of carriage thus,

	C.	q.	lb.	l.	s.	d.
A parcel down	15	3	14	1	3	7
Boxes up to London	9	1	19	0	11	11

Note,

Note, That the firſt line ſhews that the parcel that came down by the carrier, weighed 15 C. 3 qrs. 14 lb. and the carriage came to 11 3s 7d. &c.

In weighing at the water-ſide, or elſe-where, they do not weigh by the tun in great weight, tho' ſome goods are ſold by it, as logwood, cheeſe, &c. but by hundreds, quarters, and pounds, which are computed afterwards by tuns, &c.

Of Wool.

Wool is weighed by the clove, ſtone, tod, wey, &c. as follows:

7 pounds make 1 clove
2 cloves, or 14 lb. 1 ſtone
2 ſtone, or 28 lb. 1 tod
6½ tods 1 wey
2 weys 1 ſack
12 ſacks 1 laſt.

Note, In ſome places 7 tods are allowed to one wey, and 12 ſcore or 240 lb. is called a pack of wool.

Addition of Troy Weight.

This weight is ſubdivided in common thus,

24 grains is a penny-weight, marked gr.
20 penny weight is an ounce, —— oz.
12 ounces is a pound —— lb.

By this weight, ſilver, gold, liquors, amber and jewels are weighed, and till of late years, bread and flower.

Examples of Troy Weight.

6 ingots of ſilver, weight, *viz.*	lb.	oz.	dwt.	gr.	10 lb.	12 oz.	20 dwt.	24 gr.
No 1 wt.	4	5	12	10	14	6	10	21
2	5	4	16	17	24	10	11	12
3	3	11	19	20	21	6	7	10
4	4	6	7	12	22	10	12	14
5	5	1	11	12	16	11	12	13
6	4	11	12	13	21	7	6	17
	28	6	0	12	122	5	1	15

In the denomination of grains I ſtop at 24, and find it amount to 3 penny weights, and 12 grains over; wherefore I ſet down 12 grains, and carry 3 penny-weights to the penny weights; then I ſay 3 that I carry and 2 is 5, and 1 is 6, and 7 is 13, and 9 is 22, and 6 is 28, and 2 is 30; and then coming down with the tens, I ſay 30 and 10 is 40, and 10 is 50, &c. (juſt as I do in addition of money; for as there 20*s*. make a pound, ſo here 20 penny-weights make an ounce) and find it come juſt to 80; now in 80 there are juſt 4 twenties, or 4 ounces; wherefore I ſet down 0, and carry 4 to the ounces, and find them to amount to 42, which makes 3 pounds and 6 ounces over; wherefore I ſet down 6, and carry 3 to the pounds; ſaying 3 I carry and 4 is 7. and 5 is 12, &c. and find they come to 28; ſo the total is 28lb. 6oz. 0dwt. 12gr. and ſo of the reſt.

Apothecaries Weight and Meaſure.

This is the ſame with troy weight, but only differently ſubdivided, as here under.

	12	8	3	20
lb.	℥	3	℈	gr.
98	11	7	2	18
45	10	6	1	18
62	9	4	2	13
207	8	3	1	9

Note, 20 grains make a ſcruple ℈
3 ſcruples 1 dram 3
8 drams 1 ounce ℥
12 ounces 1 pound lb.

This caſt up as the other by dotting each row, according to the figures on the top of the ſum.

Note, That the apothecaries ſell their goods by avoirdupois weight, but compound their medicines by this of troy weight, 20 grains of which make a ſcruple, as is before.

Liquid Meaſure.

1 pound troy weight is equal to		1 pint
2 pints	make	1 quart
2 quarts	—— ——	1 pottle
2 pottles	—— ——	1 gallon
8 gallons	——	1 firkin of ale, ſoap, or herrings
9 gallons	—— ——	1 firkin of beer

10 ½ gallons	make	1 firkin of ſalmon
2 firkins		1 kilderkin
2 kilderkins		1 barrel
42 gallons		1 tierce of wine
63 gallons		1 hogſhead
2 tierces, or 84 gallons		1 puncheon
2 hhds. or 126 gallons		1 pipe or butt
2 pipes, or 252 gallons, or 4 hhds.		1 tun of wine
256 gallons		1 tun of oil.

Examples.

tns.	pps.	hhds.	gal.	qts.	pts.
476	1	1	42	3	1
820	1	0	22	2	1
123	0	1	18	2	1
1420	1	1	21	0	1

tns.	hhds.	gal.	qts.	pts.
78	2	31	2	1
63	3	27	3	1
46	2	45	3	0
189	0	42	1	0

Long Meaſure.

3 barley corns in length	make	1 inch
12 inches		1 foot
3 feet		1 yard
3 feet 9 inches		1 ell Engliſh
6 feet		1 fathom
5 ½ yards, or 16 ½ feet		1 pole, perch or rod
40 poles or 220 yards		1 furlong
8 furlongs, or 1760 yards		1 mile
3 miles		1 league
20 leagues, or 60 miles		1 degree

360 degrees are ſuppoſed to be the circumference of the earth and ſea.

Example.

leag.	miles.	fur.	yards.	feet.	inches.
26	1	6	170	2	7
48	2	4	210	2	6
37	2	3	28	1	5
113	0	6	190	0	6

Note,

Note, 40 poles make 1 rood
4 roods 1 acre.

Example.

10 acres	4 roods	40 poles
567	3	36
684	2	27
593	3	18
1846	2	1

Time.

60 seconds make	1 minute
60 minutes	1 hour
24 hours	1 natural day
12 hours	1 artificial (or working) day
7 days	1 week
4 weeks or 28 days	1 month
13 mo. 1 dy. 6 hou. / 52 we. 1 dy. 6 hou. / 365 dys. — 6 hou.	1 year

Thirty days hath September,
April, June and November;
February hath twenty-eight alone,
And all the reſt thirty and one:
Except in leap year, then is the time
The days of February are twenty and nine.

Examples.

10 yrs.	13 mo.	28 dys.	24 hou.	60 min.
41	11	24	21	57
37	10	18	0	43
24	12	25	20	36

10 yrs.	13 mo.	4 we.	7 dys	24 hou.	60 min.	60 ſe.
49	10	3	6	23	42	27
35	11	2	5	21	37	50
54	12	3	4	22	36	48

Thus

Thus far have been ſhewn the uſual methods by which beginners are taught the addition of monies, weights, meaſure, &c. but if ever they aim at being men of buſineſs, and to be qualified to caſt up large ſums of monies, weights and meaſures with diſpatch and certainty, ſeveral of the rules aforegoing, fitted for the capacity of children and youth only, muſt be laid aſide, and more manly methods made uſe of. Pointing in books of accounts is intollerable, for beſides betraying the inexpertneſs of the clerk, it defaces the books with needleſs marks, which no merchant or tradeſman will allow, and if the points ſhould be ſet upon a piece of waſte paper, it is ſtill but a childiſh way of doing buſineſs. The example here annexed and manner of caſting of it up, if practiſed by a learner whilſt he is perfect therein, will qualify him for performing the like in real buſineſs with eaſe, diſpatch and exactneſs, in what relates to the caſting up ſum totals of monies, weights and meaſures. Firſt, run up all the farthings which will be found to be in number 23, which is 5d. $\frac{3}{4}$ put down $\frac{3}{4}$, and carry 5 to the place of pence, caſt up the units place of the pence without regarding the 10 pence, which in this ſum are 164, on a by ſlip of paper put down 4, and carry 16 to the place of tens in the pence, this 16 added to the 14 ones that ſtand for 10 pence each, make 30, put that 30 before 4, the odd figure left under the units place of pence, make 304 pence, which by conſulting your memory or your pence table, you will find to contain 25 s. and 4d. put down 4d. under the column of pence, and carry 25 to the units place of the ſhillings, and with what was carried thither from the pence, will be found to be 196, put down 6 under the line of units in the ſhillings, and carry 19 to the place of tens of ſhillings, as was done before in the pence, this 19 added to the 27 ones that ſtand for ten ſhillings each, make 46, which is ſo many ten ſhillings, half pounds or angels, as they have been called; on the leaſt conſideration 46 half pounds will be found to be 23 pounds exactly, therefore put down 0 before the 6, and carry 23 to the place of pounds; there is no occaſion to ſay any thing here how the pounds are to be caſt up, being the ſame as in the examples in whole numbers aforegoing.

What is principally to be obſerved in this way of caſting up the pence and ſhillings, and the preference it has to what

what has been hitherto ſhewn in this book, that by caſting up the units place of the pence (as in ſums in whole numbers) and carrying one for every ten therein contained to the figures in the place of tens, which never can exceed 1 each, the number carried from the units place to the place of tens are as eaſily done as counting one two, three, &c. by which the many tedious often repeated expreſſions of ſaying, and ten is ſo many, and ten is ſo many, and ten is ſo many, which is tireſome to the lungs, a charge on the memory, and loſs of time.

That large ſums in books of accounts may be added together with the ſtill greater eaſe, diſpatch and certainty, the following method of noting down or regiſtering what is carried from one denomination to another, will be found a great help to the memory and diſpatch of buſineſs; the manner of regiſtering or noting is as follows, and inſtanced in this example. The ſum of the place of farthings is 5d. $\frac{3}{4}$ putting down $\frac{3}{4}$, I alſo place over it the figure 5, and it

$\frac{5}{3}$

will ſtand thus $\frac{3}{4}$ the 5 at top denoting that 5 pence is carried from the farthings to the pence; the pence being caſt up amount to 25 s. and 4 pence over, (as before) put

$\frac{25}{4}$

down 4 and write 25 over it, thus 4, ſhewing that 25 is carried to the place of ſhillings, in like manner the units place of ſhillings being caſt up, their ſum is 196, put down

$\frac{19}{6}$

6 and write over it 19, thus 6, ſhewing that 19 muſt be carried to the place of tens in the ſhillings, 19 carried to the tens of ſhillings make 46 half pounds or 23 pounds which being carried to the place of pounds and a cypher put before the 6, the regiſter of what was carried from the units of ſhillings to the tens and from the tens to the

$\frac{23\ 6}{\ \ 0}$

pounds will ſtand thus 06, 23 carried to the units place of the pounds, and that line run up its total is 214 which is

$\frac{21}{\ \ 4}$

4 and carry 21 to the place of tens, whoſe regiſter is 4; properly carrying and adding up the place of tens in the

$\frac{26}{\ \ 7}$

pounds the 267 which note thus 7, ſeven put down, and 26 carried to the place of hundreds, and the place of

hundreds

10	20	12	4
l.	s.	d.	
135	11	10	¼
235	15	11	
270	6	10	
376	19	10	¾
150	14	9	
160	13	8	½
275	14	11	¾
367	15	7	
253	14	6	½
295	7	10	
278	14	9	
1537	5	11	
2	7	6	
235	15	8	¼
353	14	11	
763	12	9	
576	10	10	
376	7	9	
575	11	11	¾
395	7	8	
576	19	11	
379	11	5	
476	13	9	
576	1	5	¼
576	9	8	
378	19	11	
987	16	7	
695	13	6	
987	14	10	¼
763	5	7	
593	11	2	¼
795	6	10	
674	11	2	
567	7	3	
763	13	2	¾
876	14	5	
397	15	3	¼
987	14	9	
19474	6	5	¾

hundreds caſt up, the ſum is 183, put down 4 in the place of hundreds, and mark 18 over it, indicating what is to be carried to the next place, that 18 carried and added to only an unite in the place of thouſands makes 19 thouſand in the place of thouſands, the total ſum with the reſpective regiſters will ſtand together thus

18.26.21 23.19 25. 5

l. 19474 : 06 : 5 ¾

This muſt be done on waſte paper, which is as neceſſary to be done by the moſt expert accountant, whether he uſes this method or not, to prevent eraſements, ſcratches and alterations which look ill in any accounts whatſoever, for the prevention of which every method ſhould be made uſe of to prevent errors creeping in. I ſhall ſay no more in recommending this method of noting or regiſtering, I will only ſay that it is applicable with eaſe to Avoirdupoiſe weight or any other ſpecie of addition, let the denominations be what they may.

SUB-

SUBTRACTION.

SUbtraction taketh a leſſer number out of a greater, and leaveth the difference or remainder.

Always ſet the greateſt number uppermoſt, and with the ſame care and order as in addition, ſet the leſſer number under it, ſo that units ſtand under units, tens under tens. Whatever number you uſed to ſtop at in addition, the ſame muſt you borrow in ſubtraction, when need requires; remembering to carry 1 to the next place on the left hand, for that which was borrowed.

If you have 784 oxen in a field, and are to take out 334 of them to carry to a fair or market, how many will there be left in the field?

Oxen in the field	784.
Ditto to be taken out,	334

Now to ſubſtract 334 out of 784, begin on the right hand, thus:

Take 4 out of 4, reſts 0, to be put under the line; next 3 out of 8 reſt 5; laſtly, take 3 from 7 reſts 4, to be put under the line; ſo that there remain in the field 450 oxen, which you may prove, by adding 450 to 334, and the ſum will be 784.

Oxen in the field,	784
Ditto to be taken out,	334
Remains in the field	450
Proof	784

If a perſon was born in the year of our lord 1621, how many years is it ſince?

The preſent year of our lord	1766
The year of the perſon's birth	1621
Years ſince	145

This you may ſubſtract as the laſt queſtion, thus, take 1 from 6 reſts 5 to ſet between the lines, next take 2 from 6 reſts 4 to ſet between the lines; next take 6 from 7, reſts 1; ſo that it is 145 years ſince.

By this rule you may know how long it is ſince any thing worthy of note has happened.

Thus

Thus any diſtance of time, that is from any particular date of a year may be known, by ſubſtracting that date from the preſent date of the year; for a further proof of which, take the following examples.

The preſent year	1766
The fire of *London*	1666
Years ſince	100
The preſent year	1766
Gunpowder treaſon	1605
Years ſince	161

If 643l. be owing to a merchant, and the debtor pays thereof at one time 554l. how much of the ſaid ſum of 643l. remains unpaid?

	l.
Take pen and paper, and ſet the two ſums thus,	643
	554
Remains	89

Begioning on the right hand (as before) I ſay, take 4 out of 3 I cannot, therefore I borrow 10, and add it to the 3, and it makes 13; then I ſay, take the ſaid 4 from the 13, reſts 9, which 9 I ſet under the line.

Next, becauſe I borrow 10 to add to the figure 3, yet I call that 10 but 1, ſaying 1 that I borrowed and 5 makes 6, take 6 from 4 above it, I cannot, therefore (as before) I borrow 10 again, and add it to the 4, makes 14, then I ſay, take 6 from 14, reſts 8 to ſet under the line.

Laſtly, take 1 that I borrowed at 5, and the 5 makes 6; take 6 from 6 remains 0, which being the laſt place towards the left hand, does not add to the number at all.

So that 554l. being paid of the ſum 643l. there remains yet unpaid juſt 89l. as you ſee above.

Example. A perſon borrows of his friend 1323l. and ſome time after pays him in part 1146. I demand how much remains unpaid of the debt?

Borrowed	1323
Paid	1146
Reſts due	177

Here

Here the leſſer number 1146 ſtands under the greater 1323; and to find the remainder, or ſum reſting due, I ſay, 6 from 3 I cannot, but 6 from 13 (for you muſt always borrow 10 of the next figure in the ſame upper line, and put it to the figure or cypher that is directly over the figure you ſubtract) and there remains 7; then 1 that I borrow and 4 is 5 (for as I borrowed 10 or 1 out of 2, ſo I muſt pay the ſaid 1 or 10 to the figure again, as above hinted) I ſay 5 from 2 I cannot, but 5 from 12, borrowing 10 and putting it to the figure that ſtands immediately under it, which here is 4, as above directed) and there remains 7, then 1 that I borrowed and 1 is 2. from 3 the upper figure, and there reſts 1; 1 from 1 reſts 0; and ſo the example is done, and by it ſhewn that A ſtill owes B 177 pounds, as appears in the work; and for the proof of its verity add 177 the remainder, to 1146, the leſſer of the two given numbers, and it will make 1323, being the ſame with the greater number, or ſum of money firſt due; and therefore a ſure proof of the truth and certainty of the rule. And as ſubtraction is proved by addition, ſo may addition be proved by ſubtraction: For if the two aforeſaid numbers, viz. 1323 and 1146, are added, their total is 2469; from which, if you deduct 1146, the remainder will be the greater number; or if you ſubtract 1323 from the ſaid 2469, the remainder will be 1146, the leſſer number.

All examples or ſums in ſubtraction, of one denomination, are performed as above, without any variation.

More Examples for Practice.

	l.	hhds.	tuns.	gallons.
From	6719	4812	6710	10101010
Take	2468	3456	6451	40404040
Difference	4251	1356	259	60606060
Proof	6719	4812	6710	10101010

Suppoſe 5643l. be owing to a merchant, whereof the debtor has paid 4754l. 12s. 8d. how much is unpaid?

Note

Note, That becauſe the money paid is odd, that is, hath ſhillings and pence, beſides pounds, ſet cyphers in the place of ſhillings and pence, and the ſum will ſtand thus.

To ſubtract the Sum I do thus,

	10	20	12
	l.	s.	d.
Lent	5643	0	0
Paid	4754	12	0
Unpaid	888	7	4

Saying, take 8 from 0, that I cannot do, but I borrow 12 at top, and ſay take 8d. from 12, reſts 4d. to ſet under the line.

Next the 12 I borrowed at the pence, I pay as 1 at the ſhillings, ſaying 1 that I borrowed, and 12s. make 13, take 13 from 0 I cannot, therefore I borrow 20, and ſay take 13 from 20, reſts 7s.

Next, 1 that I borrow at ſhillings, and 4 of the pounds make 5, take 5 from 3 I cannot, therefore I borrow 10, and add to it the 3, it makes 13; then take 5 from 13, and reſts 8, to be ſet under the line as above, finiſhing as the laſt example, and there remains unpaid 888 l. 7s. 4d. For proof, add the ſum paid and that unpaid together, and if it makes the ſum lent, it is right, otherwiſe not.

If a man owed to another 1130l. 2s. 8d. and has paid of it 1036l. 12s. 9d. what remains?

Set the ſum thus

	10	20	12
	l.	s	d.
Lent	1130	2	08
Paid	1036	12	09
	93	09	11

Again, be very careful in ſetting the figures under each other, that the cypher 0 is in the place of hundreds next the 36l. the figure 1 in the place of thouſands, next cypher 0, which fills up the place even with the 1000l. as the cypher by the 2s. 8d. and the 9d. above; the cypher next the left hand makes a number never the bigger, yet a cypher in the middle of any number is of ſervice; and thoſe next the right hand in any number in vulgar arithmetic; for the number 2030 is read two thouſand and thirty, becauſe there is a cypher in the place of hundreds, and a cypher in the

place of units or ones, which you may perceive by the following example.

The preſent year of our Lord is 1766
The laſt numer above is 2030

Now many perſons will readily read thoſe four figures 1766 the date of the year, but many will miſtake in the other.

The figure 1 being one thouſand, then the figure 2 under it muſt needs be two thouſand, then the 7 over the 0 is ſeven hundred, next the figure 6 being ſixty, the 3 under that muſt be thirty, &c.

Now for the true ſubtraction of the laſt example.

Firſt, I ſay, take 9d. from 8d. above it, that I cannot do, therefore I borrow the 12 at top, and add it to the 8d. makes 20d, then I ſay take 1d. from 20d. reſts 11d. which I ſet between the lines.

Next, becauſe I borrowed the 12 at top at the pence place, I carry it as 1 to the place of ſhilling, ſaying 1 that I borrow, and 12s. make 13s. take 13s. from 2s. I cannot, therefore I borrow the 20 at top, and add it to the 2 makes 22, then take the 13s. from 22s. reſts 9, which I ſet between the lines.

Next, the 20s. or 1l. that I borrowed at the ſhillings, I carry to the place of pounds, ſaying 1 that I borrowed and 6 is 7, take 7 from 0 I cannot, therefore I borrow the 10 at top, and ſay take 7 from 10, reſts 3. to be ſet between the lines.

Next, 1 that I borrowed and 3 makes 4, take 4 from 3 I cannot, therefore I borrow the 10 as I did before, and ſay, take 4 from 13, reſts 9, which 9 I ſet between the lines.

Laſtly, 1 that I borrowed in the middle of the pounds, I carry to the 0 next the left hand, and ſay, 1 that I carry and 0 is 1, therefore I take that 1 from the 1 above, reſts 0, to be ſet between the lines; and again 1 from 1 reſts 0.

So that there is unpaid 93l. 9s. 11d. of the 130l. 2s. 8d. which you may prove by adding the ſum paid and that unpaid together.

SUBTRACTION *of diverſe Denominations*

Of Money.

Suppoſe Mr. C. owes Mr. D. 91. 2s. 6d. and Mr. C. hath paid Mr. D. in part 61. 16s. 4d. what remains due to

Mr.

Mr. D? Anſwer, due to Mr. D. 2l. 6s. 2d. as by this Example.

	l.	s.	d.
Due	9	02	6
Paid	6	16	4
Reſts due	2	06	2

Take 4d. from 6d. and there remains 2d. then 16s. from 2s. I cannot, but borrow one integer of the next denomination, or one pound, which is 20s. I ſay 16 from 20, and there reſts 4, and take the over number 2, and putting it to the remainder 4, makes 6; wherefore I put down 6 in the place of ſhillings, and ſay, 1 that I borrow and 6 is 7; now 7l. from 9l. there remains 2l. ſo the money reſting due to Mr. D. is 2l. 6s. 2d. as in the example.

	10	20	12	4
	l.	s.	d.	
Sold for	242	16	3	¼
Paid in part	174	12	6	½
Anſwer	68	3	9	¼

Again, if Mr. Lovemoney, ſells Mr. Saveall timber, to the value of 242l. 16s. 3d. ¼ and gives Mr. Lovemoney a note on Mr. Miſerly for the ſum of 174l. 12s. 6d. ½. I demand the balance. Anſwer, 68l. 3s. 9d. ¼.

Here I ſay, 2 farthings (or a half-penny) from 3 farthings, and there remains 1 or ¼; which I ſet down in its proper place, *viz.* under the denomination of farthings; then 6 from 3 I cannot, but 6 from 12, as marked over the denomination) and there remains 6, and 3d. over it makes 9d. which I place under the line in its right place, *viz.* of pence; then 1 that I borrowed, (that is, 1 ſhilling) and 12 is 13; 13s. from 16s. and there reſts 3, which I likewiſe ſet down under its own rank; then 4 from 2 I cannot, but 4 from 12 (borrowing 10, as in addition I carry 1 for every 10) and there reſts 8; then 1 that I borrow and 7 makes 8; 8 from 4 I cannot, but 8 from 14, and there remains 6; ſo that the ſum remaining due is 68l. 3s. 9d. ¼ as in the work. And for its proof, you muſt add the remainder, 68l. 3s. 9d. ¼, to the leſſer or under ſum 174l. 12s. and 6d. ½, and it makes 242l. 16s. and 3d. ¼, the ſum firſt due, which is a proof of the work's being right. See the example. Or you may ſubtract the ſum that remains yet unpaid, *viz.* 68l. 3s. 9d. ¼, out of the whole ſum, *viz.* 242l. 16s. 3d. ¼ and you will find the difference or remainder will be the ſum paid, *viz.* 174l. 12s. 6d. ½.

More Examples for Practice.

	10	20	12	4		10	20	12	4
	l.	s.	d.			l.	s.	d.	
Borrowed	467	15	11	½		604	14	9	¼
Paid	198	17	11	¼		576	18	10	
Reſts due	268	17	11	¾		27	15	11	¾
Proof	467	15	11	½		604	14	9	¼

Sometimes a ſum borrowed may be paid at ſeveral times, then the payments muſt be added together, and the total ſubtracted from the ſum borrowed, as in this example:

	l.	s.	d.
Borrowed	678	5	6
Paid at ſundry times.	70	0	0
	14	18	9
	5	17	0
	22	13	6
	35	16	3
	10	12	4
Paid in all	159	17	10
Reſts due	518	7	8
Proof	678	5	6

Cloth Meaſure.

	yards	4	4 nails		ells en.	5 qrs.	4 nails
From	610	¼	2		76	2	1
Take	174	½	3		51	3	2
Diff.	435	¼	3		24	3	3
Proof	610	¼	2		76	2	1

Dry Measure.

	lst.	2 wy.	5 q.	2 c.	4 b.	4 p.
From	57	1	2	1	2	1
Take	32	1	3	1	2	2
Diff.	24	1	3	1	3	3
Proof	57	1	2	1	2	1

	chal.	4 q.	2 c.	4 b.	4 p.
From	85	1	0	3	2
Take	17	3	1	3	3

Troy Weight.

	lb.	12 oz.	20 dwts.	24 gr.
From	96	7	14	18
Take	34	8	17	19
Diff.	61	10	16	23
Proof	96	7	14	18

	lb.	12 oz.	20 dwts.	24 gr.
From	100	6	13	17
Take	70	7	14	21

Avoirdupoise or Gross Weight.

	tns.	20 C.	4 qrs.	28 lb.	16 oz.
From	69	14	2	20	10
Take	17	13	3	21	11
Diff.	52	0	2	26	15
Proof	69	14	2	20	10

	tns.	20 C.	4	28 lb.	16 oz.	16 dr.
From	74	13	½	17	14	13
Take	42	14	¼	16	15	14

Liquid Measure.

	hhds.	63 gal.	4 qt.	2 pt.
From	67	51	2	1
Take	13	58	3	0
Diff.	53	55	3	1
Proof	67	51	2	1

	tuns.	4 hhds.	63 gal.	4 qt.	2 pt.
From	74	3	47	2	0
Take	28	3	53	3	1

Long Measure.

	leag.	3 m.	8 f.	220 yds.	3 f.	12 in.
From	84	2	4	132	2	7
Take	24	2	5	79	2	9
Difference	59	2	7	52	2	10
Proof	84	2	4	132	2	7

	deg.	20 l.	3 m.	8 f.	220 yds.	3 f.	12 in.
From	76	16	1	5	140	1	4
Take	43	17	1	4	182	2	7
Difference							
Proof							

Time.

	yrs.	13 mo.	28 dys.	24 hou.	60 m.
From	68	10	24	20	47
Take	52	11	25	21	58
Difference	15	11	26	22	49
Proof	68	10	24	20	47

	years	13 mo.	4 ws.	7 dys.	24 hou.	60 m.	60 se.
From	1766	0	0	0	0	0	0
Take	178	10	3	6	23	59	47
Difference							
Proof							

Suppose

Suppoſe a ſervant was bound for 11 years, and he ſerved 10 years, 10 months, 10 weeks, 10 days, 10 hours, 10 minutes and 10 ſeconds, I demand how long he has to ſerve. Anſwer, 3 weeks, 13 hours, 49 minutes, and 50 ſeconds, reckoning 13 months to the year.

And thus much for ſubtraction; which method will ſerve for any denomination whatever, having reſpect to the ſeveral tables of quantity, as before hinted in addition.

MULTIPLICATION.

MUltiplication, for its quick diſpatch in buſineſs, may be accounted the moſt ſerviceable rule in arithmetic; it performeth the work of many additions in the moſt compendious manner, brings numbers of great denominations into ſmall, as pounds into ſhillings, pence or farthings; tuns into hundreds, quarters, pounds or ounces, &c. and by knowing the value of one thing, we find the value of many.

Multiplication is comprehended under three branches, viz.

1. The multiplicand (generally the greater of the two numbers) is the number to be multiplied.
2. The multiplier (generally the leſſer of the two numbers) is the number to multiply with.
3. The product, or the anſwer to the queſtion. But before any thing can be done to the purpoſe, it is neceſſary to learn the following table perfect by heart.

Multiplication Table.

1	2	3	4	5	6	7	8	9	10	11	12
2	4	6	8	10	12	14	16	18	20	22	24
3	-	9	12	15	18	21	24	27	30	33	36
4	-		16	20	24	28	32	36	40	44	48
5	-		-	25	30	35	40	45	50	55	60
6	-		-		36	42	48	54	60	66	72
7	-		-		-	49	56	63	70	77	84
8	-		-		-		64	72	80	88	96
9	-		-		-		-	81	90	99	108
10	-		-		-		-		100	110	120
11	-		-		-		-		-	121	132
12	-		-		-		-		-		144

To read this table of multiplication. First, begin at the top, at the figures 2 and 2, saying, twice 2 is 4, twice 3 is 6, *&c.* Then say 3 times 3 is 9, 3 times 4 is 12, *&c.* Next, 4 times 4 is 16, *&c.*

Multiplicand	3471	2759	5210	3479
Multiplier	4	5	6	8
Product	13884	13795	31260	27832

Examples

Examples with ſeveral Figures.

Example.		Proof.	
Multiply	89	Multiply	47
by	47	by	89
	623		423
	356		376
Anſwer	4183	The ſame	4183

In the example I ſay, 7 times 9 is 63, that is 3, and I carry 6; then 7 times 8 is 56, and 6 I carried is 62, which I ſet down; ſo is the firſt line or row finiſhed: then I take the ſecond figure of the multiplier, ſaying, 4 times 9 is 36, which 6 I ſet under the 2, or tens place of the firſt line, and carry 3; and then I ſay, 4 times 8 is 32, and 3 that I carried is 35, placing the 5 under the 6, and the 3 quite out towards the left hand. Laſtly, I add theſe up in order, as they ſtand, ſaying, 3 is 3; then 6 and 2 is 8; again, 5 and 6 is 11, that is 1, and I carry 1 to 3 is 4.

To prove Multiplication.

It is a common way to prove multiplication by the croſs; but it is ſubject to ſo many errors, that in ſhort, it is no proof at all to the learner. The beſt way therefore is this: Take the multiplicand and ſet it below, and the multiplier at top, that is, change the multiplicand into the multiplier, and proceed as before directed; and if the product be the ſame as before, the work is entirely right. See the next examples wrought at large both ways.

Example		Proof.
Multiplicand	28	24
Multiplier	24	28
	112	192
	56	48
Product	672	672

The

The proof of this example is worthy your obſervation; for be the ſum ever ſo large, if you change the multiplicand into the multiplier's place, and multiply right, you will find the product always the ſame.

671243	510748
12345	17432
3356215	1021496
2684972	1532244
2013729	2042992
1342486	3575236
671243	510748
8286494835	8903359136

When cyphers are intermixt with figures in the multiplier, then multiply by the figures as above; and when you come to a cypher in the multiplier, then ſet down another cypher exactly and perpendicularly under it; then begin the multiplicand again with the next figure to the cypher in the multiplier, and go through it in the ſame line, placing the firſt figure of that product next to the cypher towards the left hand, but then heed muſt be taken, that the next figure or cypher of the next line muſt be ſet down one degree farther towards the left hand, and not immediately under the laſt figure ſet down next to the cypher: As in the following examples may be fully underſtood.

3241	246805	4679[illegible]
304	3402	3[illegible]0
12964	493610	18[illegible]1920
97230	9872200	14[illegible]3940
985264	740415	1422659[illegible]20
	839630610	

When you have a cypher or cyphers in the multiplier at the beginning towards the right hand; then ſet it or them backwards from the place of units towards the right hand; and when you have multiplied by the figure or figures, annex the cypher or cyphers:

As in these Examples.

8754	8471	6174
80	500	3200
700320	4235500	1234800
		18522
		19756800

When you are to multiply by 10, 100, 1000 or 10000; it is only adding or annexing so many cyphers to the multiplicand, as are in the multiplier, that is, either 1 2, 3, or 4 cyphers, and the work is done. *Example*, Suppose I am to multiply 2375 by the numbers above; if I multiply it by 10, then I join 0 to 2375, and then it makes, or the product is, 23750: if by 100, then I annex 00, and then it makes 237500; If by 1000, I put to it 000, and then it produces 2375000: And lastly, if by 10000, I then add 0000, and then it makes 23750000, &c. and thus may any number be multiplied, when the multiplier consists of an unit with any number of cyphers.

Suppose you want to know how many half crowns there are in 425 l. you know that 8 half crowns make a pound, wherefore set them down thus:

	l.	
Multiply by	425	
	8	the half crowns in a pound
	3400	half crowns in all

Again, in 3400 half crowns how many pence?

Multiply by	3400	
	30	the pence in a half crown
Answer	102000	pence in all.

And this serves to shew that great denominations are brought into smaller by this rule.

Suppose

Suppoſe a piece of ground was 43 feet long, and 7 feet wide, I demand the contents?

Multiply 43 the length,
by 7 the breadth,

Anſwer will be 301 ſquare feet.

Suppoſe an hundred weight of iron to be worth 11 s. what is the value of 310 cwt. thereof in ſhillings?

Multiply by 11

Anſwer 3410

Admit a ſervant's wages be 32 ſhillings a month, what comes 140 ſervants to for the ſame time?

140
Multiply by 32

280
420

Anſwer 4480

Suppoſe a piece of land be 236 poles in length, and 182 in breadth, how many ſquare poles are therein?

Note, That a pole in length is 16 feet and an half, and a pole of land is a ſquare piece of ground, 16 feet and an half each way.

Length in poles 236
Breadth in poles 182

472
1888
236

Poles in all the land 42952

I begin at the figure 2 of the breadth, ſaying 2 times 6 is 12, ſetting the 2 of the 12 under the line line, keeping 1 in mind. Next, 2 times 3 is 6, and the 1 kept in mind makes 7, &c. ſo continue till all the three figures are done with, then adding up the three rows of figures, you have the total.

If

If one ſeaman has 24s. the month's wages, what will the wages of 4217 ſeamen, for the ſame time, come to?

4217
24

16868
8434

101208 ſhillings.

The Anſwer is 101208 ſhillings, which you may reduce into pounds, by the ſecond example in reduction.

If there is a ſquare pitched field of ſoldiers, containing 148 men in rank, and 148 men in file, how many men are they?

148
148

1184
592
148

Anſwer 21904

If an orchard contains 20 ſquares, and every ſquare 20 trees, and every tree 30 branches, and every branch 40 apples, how many apples are there in the orchard? Anſwer, 480000, *viz.*

The number of ſquares	20
The trees in one ſquare	20
The trees in all	400
The branches in a tree	30
The branches in all the trees	12000
The apples on a branch	40
The apples in the whole	480000

Multiplication of Money.

Multiplication of Money hath great affinity with addition of money; the ſame method being taken in carrying from one denomination to the next, *viz.* from farthings to pence, from pence to ſhillings, and from ſhillings to pounds. And as in addition (and other multiplications) you begin at the right hand, and proceed towards the left; ſo here you begin at the leaſt denomination, which is alſo at the right hand.

This method of accounting is the moſt apt and expeditious of all others, for ſmaller quantities; and therefore extreamly neceſſary in making bills of parcels, &c. And is, beyond all contradiction, as ſure and certain as any way whatſoever.

The general Rule is,

Always multiply the price by the quantity.

The firſt ſtep is, for quantities from 2 to 12; and this is done by one multiplier; as in the examples following:

Example 1. What muſt I give for 6 pieces of ſilk, if one piece coſt 8l. 12s. 6d.

	l.	s.	d.
Multiply the price	8	12	6
By			6
And the product is the Anſwer,	51	15	0

Here I ſay 6 times 6 is 36 pence, which is juſt 3s. I ſet down 0 in the place of pence, and carry 3s. to the place of ſhillings, (exactly the ſame as in addition of money;) then 6 times 12 is 72, and 3 is 75s that is 3l. 15s. wherefore I ſet down 15 in the place of ſhillings, and carry 3 to the pounds; then 6 times 8 is 48, and 3 is 51. So the whole amount of the 6 pieces of cloth, at 8l. 12s. 6d. per piece, is 51l. 15s. as in the work.

Example 2. What is the value of nine ells of damaſk, at 13s. 4d. per ell?

	l.	s.	d.
Multiply the price	0	13	4
by			9
Anſwer	6	0	0

In

In this exemple I ſay 9 times 4 is 36d. or 3s. I ſet down 0 and carry 3; then 9 times 3 is 27, and 3 makes 30; I ſet down 0, and carry 3 (as in the multiplication of ſimple numbers) then 9 times 1 is 9, and 3 is 12; which being the tens of ſhillings, conſequently they are angels; which being halved, make juſt 6l. and ſo much is the value of 9 marks, or any thing elſe at that price, viz. 13s. 4d.

Example 3. What is the value of 12 pair of ſtockings, after the rate of 6s. 5d. per pair;

	s.	d.
	6	5
		12
£.	3	17	0

Here I ſay 12 times 5 is 60d. or 5s. I ſet down 0 and carry 5, then 12 times 6 is 72, and 5 is 77, which is 77 s. or 3l. 17s.

The next degree in this way of reckoning, is of quantities exceeding 12, even to 12 times 12, or 144; all which, as far as 144, are found in the table of multiplication; which is a ready help to all purpoſes of reckoning, and particularly in this way: and that you may proceed with dexterity, you muſt be very perfect in the ſaid table, that you may be immediately apprehenſive what component parts hit your quantity propoſed, or pretty near it; (for any quantity below 12 needs no recollection at all, as in the two examples foregoing) and then work accordingly.

When the quantity propoſed is a number irregular, or ſuch a number, that no two numbers in the table can be found to anſwer it, then we muſt multiply by two ſuch numbers as come pretty near it, as is ſaid above; and for the number wanting to make up the number or quantity propoſed, multiply the given price by the number that is wanting, which will make three products by three multiplications; which laſt product muſt be added to the foregoing products reſulting from two multiplications, and the total will be the anſwer.

And firſt, I ſhall ſhew examples of the ſecond ſtep, *viz.* of regular quantities that exceed 12, and are preciſely anſwered at two multiplications, *viz.*

What comes 15 yards of callico to, at 3s. 5d. per yard?

s.	d.	
3	5	
	3	and 5
10	3	
	5	
2	11	3

Here 3 times 5 is 15d. or 1s. 3d. put down 3 and carry 1s. then 3 times 3 is 9, and 1 is 10s. so the first product is 10s. 3d. which I multiply by 5, saying, 5 times 3 is 15d. or 1s. 3d. 3 and carry 1, then 5 times 10 is 50, and 1 is 51s. or 2l. 11s. So the whole amount of 15 yards, at 3s. 5d. per yard, is 2l. 11s. 3d. And demonstrable thus, *viz.* If 10s. 3d. be the value of 3 times 3s. 5d. then 5 times the value of 10s. 3d. must of necessity be 15 times the value of 3s. 3d. because 5 times 3 is 15: And its truth may be proved by addition and multiplication, thus, set down 3s. 5d. 3 times, in additional order, and put the three lines together, and the total of them multiply by 5, as before, and the answer will be the same. Or set down 17s. 1d. (the product of 3s. 5d. multiplied by 5) 3 times also, and then add them together, and the total will be exactly the same with the result by multiplication; as in the following examples.

(1) s.	d.	(2) s.	d.	(3) s.	d.
3	5	3	5	17	1
3	5		5	17	1
3	5	17	1	17	1
10	3			2	11	3
	5				
2	11	3			

By this we see, that in all examples under this head, we are to pitch two numbers (for multipliers) in the table; which multiplied together, make the quantity proposed; and then we are to multiply the price by one of the numbers, it matters not by which first, and then that product is to be multi-

multiplied by the other number, and the second or last product will be the answer.

Example. What is the value of 21 pair of pumps, at 7s. 9d. per pair?

	s.	d.	
	7	9	
		7	and 3
2	14	3	
		3	
8	2	9	

In this Example I say, 7 times 9 is 63d. or 5s. 3d. I set down 3 and carry 5; then 7 times 7 is 49, and 5 is 54s. or 2l. 14s. So the first product is 2l. 14s. 3d. which I multiply by 3, and that produces the last product or answer, *viz.* 8l. 2s. 9d.

More Examples.

What cost 36 yards of diaper, at 4s. 5d. per yard?

s.	d.	
4	5	
	3	
13	3	
	12	
Answer, 7	19	0

What is the value of 44 hats, at 10s. 6d. per hat?

s.	d.	
10	6	
	4	
2	2	0
	11	
Answ. 23	2	0

In the last product of the first example the half of 15 angels is 7l. 10s. which added to the 9s. make 7l. 19s.

Example. 56 gallons of brandy, at 4s. 9d. per gallon?

	s.	d.	
	4	9	
		7	and 8
1	13	3	
		8	
Answer	13	6	0

Example. What coſt 66 lb. of tobacco, at 1s. 10d. per lb.

	s.	d.
	1	10
		6
	11	0
		11
Anſwer,	6	1	0

What is the value of 84 pieces of coin, each 16s. 6d.

	s.	d.
	16	6
		7
	5	15	6
			12
Anſwer	69	6	0

The next gradation of advance is of quantities irregular, or of numbers that are not to be anſwered preciſely at two multiplications: In this caſe, there ariſeth no increaſe or difficulty, but it is as eaſy as the examples foregoing; only here you will have an addition of one line more, occaſioned by bringing down the price of one to be added to the laſt product; or elſe a line more made by multiplying the price by what is defective or wanting in the number by two multiplications, to make up the propoſed quantity compleat; as it may be of 2, 3, 4, 5, &c. as by the ſubſequent examples may be ſeen.

Example. What is the value of 39 ſilver mugs, at 2l. 13s. 6d. per mug?

	l.	s.	d.	
	2	13	6	
			6	and 6
	16	1	0	
			6	
	96	6	0	
	8	0	6	
Anſwer,	104	6	6	

Here I find that 6 multiplied by 6 makes 36, which is within 3 of the quantity propoſed; wherefore I multiply by 6, and that product again by the other 6; the laſt product is 96l. 6s. which is the value of 36; but we want to know

know the value of 39, wherefore I multiply the price of one, *viz.* 2 l. 13s. 6d. by 3 that is defective or wanting to make up 36 to 39, saying 3 times 6 is 18d. *&c.* and find that 3 times 2 l. 13s. 6d. is 8 l. 0s. 6d. which added to 96 l. 6s. the total, which is 104 l. 6s. 6d. gives the compleat value of 39; for 36 and 3 makes 39 See the work.

Example. What coſt 79 cwt. of Sugar, at 28s. per Cwt?

		s.	
		28	
		7	and 11
	9	16	
		11	
	107	16	
	2	16	
Anſwer,	110	12	

In this example I ſay 7 times 8 is 56, 6 and carry 5; and 7 times 2 is 14, and 5 is 19; the half of which is 9 and an half, or 9 lb. 10s. ſo the firſt is 9 l. 16s. which multiplied by 11, produces 107 l. 16s or the value of 77; then for 2 wanting I multiply the price by it, and that gives 2 l. 16s. which added to 107 l. 16s. makes the whole value 110 l. 12s. as in the work.

Example. 112 lb. of ſoap, at 4d. $\frac{3}{4}$ per lb.

			d.		
			4	$\frac{3}{4}$	
			10	and	11
	3	11	$\frac{1}{2}$		
		11			
2	3	6	$\frac{1}{2}$		
		9	$\frac{1}{2}$		the product of 2lb. which is wanting.
Anſwer,	2	„ 4	„ 4		

Note,

Note, After I have multiplied by 10 and 11, the parts of 110, there wants 2, therefore I multiply 4d. ½ by 2, which gives 9d. ½ which added to 2l. 3s. 6d. ½ makes 2l. 4s. 4d. the value of 112 lb.

Example. 94 pair of gloves at 22d. or 1s. 10d. per pair?

s.	d.	
1	10	
	10 and	9
18	4	
	9	
8 5	0	
7	4	
L 8. 12	4	Answer.

Here what is wanting, after the two multiplications, is 4; wherefore I multiply 1s. 10d. (the price) by 4, which produces 7s. 4d. to be added, &c.

Example. 38 cwt. and an half of currents at 25s. 6d. per cwt?

s.	d.	
25	6	
	9 and	4
11 9	6	
	4	
45 18	0	
2 11	0	
12	9	for the half cwt.
49 1	9	Answer.

After I have multiplied by 9 and 4, I multiply the price 25s. 6d. by the quantity wanting, and it produces 2l. 11s. then for the half cwt. I take half of the price, which is 12s. 9d. and then collect the three lines, the total of which is 49l. 1s. 9d. for the answer.

Note, From the last example may be observed, that there is 2 wanting to make up the true quantity; nay, if the two multiplications be short by 10 or 12, it is as easy to multiply the price by 10 or 12, as by 2 or 3, and the addition is the same.

Ex-

Example. What comes 110 ¾ loads of hay, at 4l. 10s. 6d. per load?

l.	s.	d.	
4	10	6	
		10	and 10
45	5	0	
		10	
452	10	0	
45	5	0	
2	5	3	
1	2	7	½
501	2	10	½ Anſw.

After I have multiplied by 10 and 10, which makes 100; I multiply the price 4l. 10s. 6d. by 10 that is wanting, which gives the ſame with the firſt product, *viz.* 45 l. 5s. which ſtands under the product by 100; and for the ¾ of a load, I take ¼ of the price, *viz.* firſt the half, and then the half of that half, that is 2l. 5s. 3d. and 1 l. 2s. 7d. ½; which 4 lines added together make 501 l. 2s. 10d. ½ for the anſwer.

DIVISION.

DIVISION is the reverſe of multiplication; for, as any ſum is encreaſed as many times as the figure is multiplied by; ſo in diviſion, the number is decreaſed, or divided into as many parts, as the value of the figures divided by.

There are four things very neceſſary to be known in diviſion, *viz.*

Firſt, The dividend, which is the ſum given to be divided.

Secondly, The diviſor, or number given to divide by.

Thirdly, The quotient or anſwer, which ſhews how many times the diviſor is contained in the dividend; or into how many parts the dividend is divided.

Fourthly, The remainder, which is a fractional part of the quotient: but the three firſt ſhould be well underſtood what they mean.

Obſerve: Let us take any two numbers, ſuppoſe 24 and 6: Now 24 is the dividend, and 6 the diviſor. Then I aſk how many times 6 can I have in 24, and the anſwer is 4; which 4 is called the quotient. So alſo, ſuppoſe it was required to divide 108 by 12, or into 12 parts, then every part would be 9, for 12 times 9 is 108. Now 108

is the dividend, or ſum to be divided; 12 is the diviſor, and 8 is the quotient.

I will now proceed to ſome examples in ſingle figures; but pray obſerve the following rule.

Of dividing by ſingle Figures in one Line only.

Rule. Firſt, aſk how many times the diviſor is contained in the firſt figure of the dividend, and if the diviſor be larger than the firſt figure of the dividend, then ſeek how many times it can be had in the firſt two figures of the dividend, and ſet the figure down accordingly: And if any thing remains from the firſt figure in the dividend, carry it to the ſecond; and if any thing remains in the ſecond figure, carry it to the third; remembering always in this ſhort diviſion, that if one remains to call it 10, if 2 remains call it 20, if 5, 50, and ſo on; carrying the remainder of one figure to another in mind.

Note, To make the work both ſhorter and eaſier, remember, that 2's is two's, 3's is read three's, 5's is five's, 12's is twelve's, and ſo for any other figure: Thus, the 7's in 14, is read thus, the ſevens in 14; and the 6's in 24, is the ſixes in 24; which is the ſame as if I ſhould aſk, how many ſixes can I have in 24, but only ſhorter and more convenient.

An example or two will, with care make it familiar.

Example 1.

Dividend.

Diviſor 3) 36

Quotient 12 Anſwer.

3

Proof 36

Example 2.

Dividend.

Diviſor 4) 128

Quotient 32 Anſwer.

4

Proof 128

Now obſerve, in *Ex.* 1. I aſk how many 3's I can have in 3, or I ſay, 3's in three once; then I ſet down 1 under the 3 in the dividend, and as nothing remains, I aſk how many 3's in 6, or I ſay, the 3's in 6 are 2 times, or twice, and nothing over; therefore, I ſet down 2 under the 6, and it is done.

Again

Again, in *Ex.* 2. I ſay the 4's in 1 I cannot, but taking the next figure to it, *viz.* 2, I ſay, 4's in 12 is 3 times, then I ſet down 3 under the 2, and as nothing remains, I ſay the 4's in 8 is twice, then I ſet down 2 under the 8, and it is done. Now to prove it, I multiply 32, the quotient, by 4 the diviſor, and find it 128, like the dividend.

Example 3.		*Example* 4.	
	Dividend		Dividend
Diviſor 8)	37168	Diviſor 9)	245061
Anſwer	4646	Anſwer	27229
	8		9
Proof	37168	Proof	245061

Now obſerve in Ex. 3, I divide by 8, ſaying, the 8's in 3 I cannot, but the 8's in 37 is 4 times 8 is 32, and 5 over; I therefore ſet down 4 under the 7, and carry 5 to the next figure, which is 1, which I now call 51; (for what I carry from one figure, I muſt always place before the next figure) then I ſay the 8's in 51 is 6 times 8 is 48, and 3 over; which 3 I now carry to the 6, and it is 36; therefore I ſay the 8's in 36, is 4 times 8 is 32, and 4 over; this 4 I now place before the 8, and it is 48; then I ſay the 8's in 48 is juſt 6 times, and the work is done. To prove it, I multiply the quotient or anſwer by the diviſor 8, and find the product the ſame as the dividend. In Ex. 4, I ſay, the 9's in 2 I cannot, but the 9's in 24 are 2 times, or twice 9 is 18, and 6 over, which 2 I place under the 4, and carry 6 to the next figure, which is 5, and call it 65; then I ſay the 9's in 65 is 7 times 9 is 63 and 2 over, which 2 I place before the cypher (0) and it is 20; then I ſay the 9's in 20 is twice 2 is 18 and 2 over, which I carry to the 6, and it is 26, then I ſay the 9's in 26 is twice and 8 over, which I ſet before the laſt figure 1, and it is 81; then I ſay 9's in 81 is 9 times and nothing over.

To prove it, I multiply the anſwer by 9, and the product will be the ſame as the dividend.

Example

Example 5.		*Example* 6.	
7) 424296		8) 8749264	
Anſwer	60613-5	Anſwer	1093658
	7		8
Proof	424296	Proof	8749264

Here in Ex. 5, there remains 5 at laſt; therefore I ſet it at the end of the anſwer, parting it with a ſtroke, thus -5, and when I prove the work I multiply by 7, and take the remainder 5 in, ſaying, 7 times 3 is 21, and 5 is 26, 6 and I carry 2, &c.

Example 7.		*Example* 8.	
9) 218765		5) 671849	
Anſwer	24307 2	Anſwer	134369 4
	9		5
Proof	218765	Proof	671849

To divide by Twelve the ſhort way.

Let it be required to divide 154974 by 12; I ſet it down thus:

12) 154974

12914-6

Here I divide by 12, ſaying the 12's in 15, is 1 and 3 over, this I carry to 4, and it is 34; then 12's in 34 twice and 10 over, that is 109; then the 12's in 109 is 9 times, and 1 over, that is 17; then the 12's in 17, once and 5 over, that is 54; then the 12's in 54 is 4 times and 6 over, which I place after the ſum thus, -6, and it is done. Now to prove it I multiply back by 12, and take in the remainder, and proceed as in ſingle figures.

Note. Multiplication is an infallible proof for diviſion; for if you multiply the quotient by the diviſor, you will have

have the ſame figures as are in the dividend: but always remember to take in the remainder, with the firſt figure you begin to multiply by.

There are three or four ways to work diviſion; but as my intent is not for curioſity, but improvement, I ſhall only ſhew that method which is moſt natural and practicable; and you may at any time learn the reſt.

2. *Of dividing by two, three or more Figures.*

Rule. Firſt, ſeek or aſk how many times the figures in the diviſor are contained in the ſame number of figures in the dividend; if they be leſs than the diviſor, take in the next figure, then aſk how many times, and put that figure in the quotient. Multiply then the diviſor by the ſaid figure in the quotient, and place it under thoſe figures in the dividend that you began to work with, always obſerving, that the product be not larger than the figures in the dividend; for if they are, you muſt rub out the figure in the quotient, and put one of a leſs denomination. This being done, ſubtract the product from that part of the dividend it ſtands under, and to the remainder bring down the next figure in the dividend, placeing or joining it to the laſt figure of the remainder. Then ſeek how many times the diviſor is contained in theſe figures; then multiply the diviſor by the ſaid figure; then ſubtract again; and laſtly, bring down the next figure in the dividend, as before; and proceed thus till there are no more figures in the dividend, and the work is done.

Note 1, Every time you ſubtract, obſerve whether the remainder is larger then the diviſor, if it is, you muſt put a larger figure in the quotient; and whenever a figure is taken down and joined to the remainder, and is ſtill leſs than the diviſor, then put a cypher in the quotient, and bring down another figure of the dividend; if this is ſtill leſs, put another cypher in the quotient, and proceed as before.

Note 2, That a cypher can never be put for the firſt figure in the quotient, only in decimals.

An example or two at large, will make it eaſier.

Example 1.

Diviſor 14) 17276 (1234 Quotient or Anſwer.

14		
32		1234
28		14
47		4936
42		1234
56	Product	17276 Divid.
56		

Now obſerve: Having 2 figures in the diviſor, I aſk how many times they are contained in the two firſt figures of the dividend [*viz.* 17] and find it once; therefore I ſet 1 in the quotient, then I multiply the diviſor 14 by 1, ſaying once 4 is 4, once 1 is 1, and place it under the 17. Then ſubtract 14 from 17, and there remains 3; and laſtly I bring down the next figure in the dividend (*viz.* the 2) and join it by the ſide of the remainder 3, and it is 32; and now I begin as at the firſt, and aſk how many times 14 are contained in 32, and find it twice; therefore I ſet down 2 in the quotient: Then I multiply the diviſor 14 by 2, which is 28, and place it under 32; this done, I ſubtract 28 from 32, and there remains 4; and then again I bring down the next figure of the dividend (*viz.* 7) and place it by the ſide of 4, and it is 47. Then I aſk how many times 14 I can have in 47, and find it 3 times; therefore I put 3 in the quotient, and multiply 14 by it, which is 42, which I place under 47. Then I ſubtract 42 from 47, which is 5, and bring down the laſt figure in the dividend, which is 6, and it makes 56; then I ſeek how many times 14 I can have in 56, and find it 4 times; then I multiply 14 by 4, and find it juſt 56, which I place under the other 56, and the work is done.

RULE 2.

Note 1, When there are ſeveral figures in the diviſor, it is eaſier for a learner, to aſk how many times the firſt figure of the diviſor is contained in the firſt figure of the dividend, and place the times in the quotient; then multiply

tiply the whole divisor by the quotient figure, and if the product be more than the figures which belong to the dividend, you must try a figure less, and put it in the quotient.

Note 2. If the first figure of the divisor be larger than the first figure in the dividend, then take two figures in the dividend, and seek how many times the first figure of the divisor is contained in them. But

Remember, that in making trial how often the first figure in the divisor is contained in two figures of the dividend, it will sometimes appear to be 10 or 12 times; but observe, it never can be above 9 at most, and oftentimes not so many as it appears to be.

The same Example further demonstrated.

Let it be required to divide 17276 by 14.

First, I set the dividend down on a slate, and make a couple of crooked lines at the ends of it, in the first of which I place the divisor, thus, 14)17276(and the other is to place the quotient in.

Secondly, I ask how many times the first figure of the divisor is contained in the first figure of the dividend, and find it once, therefore I place a 1 in the quotient, and multiply the whole divisor by it, and place the product under the two first figures of the dividend, and subtract it therefrom, and it will stand thus:

Second Work.

14) 17276 (1
14.

3

Thirdly, to this remainder 3 I bring down the next figure, *viz.* 2, (always making a dot under the figure I bring down) and it is 32; then I ask how often the first figure 1 in the divisor is is contained in 3, and it is 3 times; but upon trial I find 3 times 14 is 42, therefore, as 42 is more then 32, I must take a less figure; I therefore make trial of a 2, and find twice 14 is 28, which I place under 32, and subtract it, and there remains 4, which stands thus:

Third Work.

14) 17276 (12
14.

32
28

Remains 4

Fourthly, I now make a dot under the 7, and bring it down by the ſide of the 4, and it is 47, then I aſk how many of the firſt figures of the diviſor I can have in the two firſt figures of the dividend, and find it four times; therefore, I multiply 14 by 4, and it is 56: Now I cannot take 56 out of 47, therefore 4 times is too much, and I make trial of a leſs figure. to wit, 3, which I put in the quotient and multiply 14 by it, which is 42, and place it under 47, and there remains 5, which ſtands thus:

Fourth Work.

14) 17276 (123
14..

32
28

47
42

Remains 5

Laſtly, I make a dot under the 6, and bring it down by the ſide of the 5, thus 56; then I aſk how many times the firſt figure of the diviſor is contained in 5, or the ones in 5 is 5 times; but upon trial, I find it will go but 4 times; therefore I place a 4 in the quotient, and multiplying 14 by it, find it to be 56, which I place under the other 56, and there remains 0, and the work is done, as under.

Laſt

Laſt Work.

Diviſor 14) 17276 (1234 Quotient.

14...

32
28

47
42

56
56

0

Proof

1234 Quotient.
14 Diviſor.

4936
1234

17276 Dividend.

The reaſon of making dots under every figure taken down, is, becauſe there may be no miſtake which figure comes next in courſe; but when you are quite perfect, you need not trouble yourſelf with them.

I ſhall give an example or two more, and alſo ſhew how to prove the ſame by addition.

Example 2.

214) 13456789 (62882
*1284

616
*428

1887
*1712

1758
*1712

469
*428

Remains 41

Proof by addition.

1284
428
1712
1712
428
41 Rem.

13456789

This method of proving diviſion by addition, as is ſhewn above, is a very eaſy and expeditious way; it is no more than the ſum total of all the reſpective products of each figure in the quotient multiplied with the dividend, taking

in the remainder, if any, these respective products which are marked with stars in the work, are seperately set on the right hand of the work. Some writers on arithmetic who recommend this method of proof, direct it to be done as the figures stand in the work, but as that must be attended with difficulty, as every other figure in the casting must be omitted, I presume the best way is to set the respective products seperately as is done in this and the following Example. The first product must have as many points after it as there are remaining figures in the dividend not brought down, and the last place of figures in each respective product must be set one place more to the right hand than the foregoing product, and so on successively, let the products be ever so many, and the remainder, (if any) the last place to the right hand, must be set square with the last figure of the last product; all added together, if equal to the dividend, the work is right. If a cypher or cyphers should occur in the quotient, for the first cypher, instead of setting the product of the next figure one place more to the right hand of the last, it must be set two places more that way, as is instanced in the proof to the third example, where there is a cypher in the quotient the 4th place of figures, line the fourth in the proof, which is the last product of six in the quotient, is set two places more to the right hand than the foregoing, and if several places of cyphers should follow one another in the quotient, the product of the next figure must be set one place more to the right hand than the number of such cyphers.

Example 3.

4358) 67140963 (15406 Answer.

*4358....

23560	Proof by addition.
*21790	4358
	21790
17709	17432
*17432	26148
	1615
27763	67140963
*26148	
Remains *1615	

Example

Example 4.

9462)86532176(9145
*85158 . . .

13741
* 9462

42797
* 37848

49496
* 47180

Remains * 2316

Proof 86532176

I hope care will be taken to have no occaſion to prove the work at all. Perſons in buſineſs cannot go thro' theſe forms; if they ſuſpect they have done wrong, they look over the work a ſecond time, and that is a ſufficient proof in general.

Of Contractions.

When the Diviſor conſiſts of ſeveral cyphers after a figure or figures, then cut them all off, or ſeperate them from the figures with a daſh of your pen or pencil; and alſo remember at the ſame time to cut off as many cyphers or figures in the dividend; then work the ſum as if ſuch cyphers had not been there at all, and you will have the ſame anſwer.

Ex. 1.	*Ex.* 2.	*Ex.* 3.
1|00)6750|00	3|000)7812|00	12|0)6546|0
6750 Anſwer	2604 Anſ.	545-6

Here I cut off all the cyphers in the diviſor, and as many cyphers in the dividend, and divide only by the ſingle figures, and if any thing remains, I ſet it after it. As in

Ex-

Example 3, there is 6 remains, which I ſet after the anſwer, thus -6.

I ſhall here leave a few examples for practice ſake, and proceed to diviſion of parts.

Examples.

Divide 987654321 by 20, 300, 4000, 50000.
By 20, the quotient is 49382716, and the remainder 1.
By 300, the quotient is 3292181, the remainder 21.
By 4000, the quotient 246913, the remainder 2321.
By 50000, the quotient 19753, the remainder 4321.

Diviſion of Parts.

Diviſion of parts, is the dividing by any two ſingle figures in their parts, which two figures multiplied together will be equal to the diviſor.

You remember in queſtions of multiplication, that when any number was given in the table, you found two ſuch figures, which, when multiplied together, would make that number; ſo here alſo you do the ſame, only with this difference, that you here divide by them inſtead of multiplying. Thus, ſuppoſe I was to divide by 24, by 36, by 48, or by 72, I firſt divide by 3, then by 8, for 3 times 8 is 24, and the laſt quotient is the anſwer. So if I divide by 48, I divide the number firſt by 8, and then that quotient I divide by 6, and have the proper anſwer, &c.

Example 1.

Divide 2376 by 24. Here 4 times 6 is 24.

Firſt by 4) 594 Quotient by 4.

Then by 6) 99 Quotient by 24.

Example 2.

Divide 29676 by 36. Here 6 times 6 is 36

6) 4946

6) 824-2

Example. Divide 11232 by 48. In this example the digits or ratio's, which multiplied together, make the diviſor

viſor 48, are 6 and 8, or 8 and 6, for it matters not which of the ratio's you divide by firſt; for both diviſions together give a true anſwer, and the ſame quotient, as may be ſeen by the different methods of the following work.

6)11232		Or thus, 8)11232	
8) 1872		6) 1404	
234	Quotient	234	

Here, tho' the operations are diverſe, yet the quotient are one and the ſame. Again, divide 9156 by 42.

Example.

6) 9156

7) 1526

218 Quotient

Here the diviſors are 7 and 6, or 6 and 7; for either of both, will give the ſame quotient..

And thus may above forty examples be wrought by numbers out of the multiplication table, with great diſpatch and expedition, as by 14, 15, 16, 18, 21, 22, 24, 25, 28, 32, &c.

When it happens there is any remainder in the firſt diviſion, or the laſt, or in both, to know the true remainder as if you divided by the common way, take this method, viz. multiply the firſt diviſor by the laſt remainder, and take in or add the firſt remainder, if there be any, and the product will be the true or ſame remainder as if you divided by the long way.

Example. Divide 5840 by 15.

Here I multiply 3, the firſt diviſor, by 1, the laſt remainder, and take in 2, the firſt remainder, and it makes 5 for the true remainder, as may be proved at leiſure by the other way.

3)5840

5)1946-2

389-1 Quotient

5

The

The ſame obſervation and method muſt be taken with reſpect to component parts mentioned before, in diviſion of money, as in diviſion of ſingle numbers.

Example 1.

	l.	s.	d.	
Divide	24	7	6	by 5
5)	4	17	6	Anſwer.

Example 2.

	l.	s.	d.	
Divide	79	18	6	into 24 equal parts.
6)	13	6	5	
4)	3	6	7 $\frac{1}{2}$	Anſwer.

By this method of diviſion of money (if the quantity be, as aforeſaid, made by even component parts) you may, by having the price of ſeveral things, know the price or value of one thing, at the ſaid rate, as well as by the rule of three: So doth multiplication of money anſwer queſtions in the rule of three, when the firſt number is an unit or one.

Ex. If 20 lb. of tea coſt

l.	s.	d.	
12	14	8	what coſt 1 lb?
4) 3	3	8	
5) 0	12	8 $\frac{3}{4}$	and $\frac{3}{5}$ of a farthing. Anſwer.

Ex. 2. If 36 pair of ſhoes coſt

l.	s.	
17	2	what coſt 1 pair?
6) 2	17	
6) 0	9	6 Anſwer.

As in multiplication of money, to have an anſwer you multiply the price by the quantity; ſo in diviſion of money, you divide the price by the quantity, to have your anſwer.

And ſo much at preſent for multiplication and diviſion; the various and excellent uſes of which will be better underſtood in the following rules of arithmetic, particularly in the next rule called reduction.

RE-

REDUCTION.

REduction is wrought by multiplication and diviſion.

For any greater number or name is turned into a leſſer by multiplication, by multiplying by ſo many of the leſſer, as make one of the greater.

For if you muliply pounds in money by 20, the product is ſhillings: or, ſhillings by 12, the product is pence: or pence by 4, the product is farthings.

Any leſſer number or name is turned into a greater by diviſion, by dividing the leſſer name given by ſo many of the ſaid leſſer name, as make one of the greater name required.

For, if you divide any number of farthings by 4, the quotient ſhews the pence; or pence divided by 12, ſhew ſhillings in the quotient; and ſhillings divided by 20, give in the quotient pounds in money.

In 678l. how many ſhillings, pence and farthings?

678
20

13560 ſhillings
12

162720 pence
4

650880 farthings

In 674 guineas, how many ſhillings, pence and farthings?

674
21

674
1348

14154 ſhillings
12

169848
4

679392 farthings.

In

In 650880 farthings, how many pence, ſhills. & pounds?

4) 650880

12) 162720 pence

2|0) 13560 ſhillings

678 pounds

In 679392 farthings how many pence, ſhills. & guin.

4) 679392

12) 169848

21) 14154 (674 guineas
126

155
147

84
84

0

Caſe. When a number of one denomination is given to be reduced into a leſſer denomination.

Rule. Multiply the given number by ſo many units of the inferior denomination into which you would have the number given reduced, as are contained in an unit of the denomination which is given, and the product is the anſwer.

In 345 Pounds how many farthings?
960 the farthings in a pound.

20700
3105

Anſwer 331200 farthings.

Ex. In 287 hundred weight, how many pounds?
112 pounds in a hundred.

574
287
287

32144 pounds for anſwer.

Example

Example. In 628 ells Flemiſh, how many quarters of a yard?

628 ells
3 quaters of a yard in an ell Flemiſh

1884 quarters of a yard for anſwer.

Ex. In 484 groſs of tape, each groſs 12 dozen, each dozen 2 pieces, and each piece 36 yards, how many yards?

484 groſs
12 dozen in a groſs

5808 dozens in 482 groſs } Multiply
72 yards in a dozen }

11616
40656

418176 yards for anſwer.

Caſe. When it is required to reduce numbers of diverſe denominations into the loweſt denominations.

Rule. Work as in the laſt caſe; but if you have any number of the the next inferior denomination to that you are reducing, add ſuch number to the product.

Ex. In 364l. 5s. 5d. how many pence?

l.	s.	d.	
364	5	5	Multiply and add the 5s.
20			the ſhillings in a pound

7285 ſhillings in 364l. 5s. } Multiply and
12 pence in a ſhilling. } add the 5d.

87425 pence in 364l. 5s. 5d. for anſwer.

In the laſt example in reducing the pounds, ſay 0 is 0, but 5 (in the ſhillings) is 5, then ſay twice 4 is 8, then twice 6 is 12, that is two and carry 1; then twice 3 is 6, and 1 is 7; again multiply the ſhillings by 12, and take in the odd pence. So the work is done.

Ex. In 17 cwt. 3 qrs. 15 lb. how many qrs. lbs. and oz.

cwt.	qrs.	lb.
17	3	15
by 4		
71 qrs.		
28		
573		
143		
2003 lb.*		
16		
12018		
2003		
32048 oz. Answer.		

Note, The following method is very useful in many cases, to reduce hundred weights into pounds, being both short and expeditious, *viz.*

* Set down the hundreds 4 times under one another, in the following manner, *viz.* twice under one another, and the other two, each one place more towards the left-hand; then count how many lbs. are in the odd qrs. and lbs. and place them under the units and tens, and add them together, you have the Answer.

17 cwt.
17
17
17

99 lb. in 3qrs. 15lb.

* 2003

N. B. This method is used all over British America, in reducing long hundreds to neat pounds.

Proof.

In 32048 ounces, how many lb. qrs. and cwts.
Divide this back again by 16, 28, and 4, and you will have 17cwt. 3qrs. 15lb.

Reduction ascending

Is, when numbers are reduced or changed from a lesser into a greater denomination.

Case. When the number is given to be reduced to the next superior denomination.

Rule. Divide the said given number by such a number of units of the denomination given, as make a unit of the next superior denomination, and the quotient is the answer.

Ex-

Example. In 32144 lbs. how many hundreds?

112) 32144 (287 hundreds for anſwer.
224

974
896

784
784

0

Caſe. When a number is to be reduced to a denomination higher than the next ſuperior denomination.

Rule. Divide the given number as before, by ſuch a number of units of the denomination given, as make a unit of the next higher denomination, and note the remainder. Then divide that quotient by ſo many units of that name or denomination, of which it is of, as make a unit of the next higher denomination to the ſaid quotient, &c. noting the remainders, as in the example following.

Ex. In 48763 pence, how many ſhillings and pounds?

12) 48763

20) 4063-7

Anſwer 203-3-7

Ex. In 76498 farthings, how many pence, ſhillings and guineas?

4) 76498

12) 19124 $\frac{1}{2}$

1593-8
21) 147 (75

123
105

18

Anſwer 75 guineas, 18s. 8d. $\frac{1}{4}$.

Example. In 418176 yards, how many groſs of tape? Divide the given number by 72, and that quotient by 12, for anſwer; becauſe 72 yards is 1 dozen, and 12 dozen 1 groſs.

yards
72) 418176
360...

581
576

576
576

0 remains.

dozens
12) 5808

484 groſs for anſw.

Reduction aſcending and deſcending.

Ex. In 648 ells Flemiſh, how many ells Engliſh? Multiply the given Number by 3, and divide the product by 5, and the quotient is the anſwer.

648 ells Flemiſh
3 quarters of a yard in 1 ell. Mult.

5) 1944

388 $\frac{4}{5}$ ells Engliſh for anſwer.

4 remains, which placed over the diviſor is $\frac{4}{5}$.

Note, That the remainder is always of the ſame denomination with the dividend.

Ex. In 46 cwt. of cotton wool, how many pounds, and what the price at 15d. a pound? Anſwer 322 l.

46 cwt.
46
46
46

5152 pound
15 pence for 1 pound

25760
5152

77280 pence for anſwer; which reduce into pounds as before taught, and as above.

d.
12) 77280

20) 6440

322

Ex-

Ex. In 964 dollars, each 4s. 4d. how many pounds ſterling?

964 dollars
52 pence per dollar } Multiply.

1928
4820

50128d.

d.
12) 50128

2|0) 417|7. 4d. over

Anſwer 208l. 17s. 4d.

Examples of both kinds of Reduction, one proving the other.

In 212l. 14s. how many pence?

20
4254
12
51048 Anſwer.

In 51048d. how many pounds?

12)
2|0) 4254
212-14 proof.

In 74628 grains, how many pounds troy?

24) 74628 (3109
72...
26
24
228
216
12 grains.

2|0) 31c|9
12) 155-9
12lb. 11oz. 9pwt. 12gr.

lb. oz. pwts. grs.
In 12 11 9 12 how many grains?

12
155
20
3109.
24
12438
6219

Anſ. 74628 and Proof.

In 27 cwt. ¾ of cotton wool, how many pounds?

cwt.
27
27
27
27
84
3108

112) 3108 (27 cwt. ¾ Proof
224.
868
784
84 lb. or ¾ of a C

Bring 8974 ells Flemiſh, into ells Engliſh.
Multiply by 3, and divide by 5; becauſe 3 quarters make an ell Flemiſh, and 5 an ell Engliſh.

8974
3
5) 26922
5384 ⅖

Anſw. 5384 ⅖ or 2qrs.

5384 ⅖
5
3) 26922
8974 proof

In 137 cwt. 2qr. 14lb. of copper, how many pounds, and what does it come to at 22d. per lb?

cwt.	Or this,
137	187
137	112
137	
137	274
70	1507
	70
15414 lb. at 22 d. per lb.	15414 pounds.
30828	
30828	
12) 339108	
20) 28259	
1412l. 19s. Answer.	

Reduce 874 ells Engliſh into yards.

Multiply by 5, and divide by 4, thus:

874	1092-2
5	4
4) 4370 quarters.	5) 4370
1092 2	Proof 874

Anſwer, 1092 yds and ½

Bring 300 tuns of wine into gallons.

4	
1200	Or thus,
63	252 gallons 1 tun
3600	300
7200	75600
75600	

And

And so on the contrary by division.

lasts. qrs. bushels. pecks.

Reduce 46 3 5 2 into pecks.

10 qrs. 1 last

363 qrs.
8 bushels 1 qr.

2909
4 pecks 1 bushel

11638 pecks in 36 lasts, 3 quarters, 5 bushels and two peeks

Here I multiply by 10, and take in 3 qrs. and then by 8, and take in 5 bushels; and lastly, by 4, and take in two pecks.

4) In 11638 pecks, how many lasts, &c.

8) 2909-2 pecks taken in

10) 363-5 bushels taken in

lasts 36-3 quarters taken in

Answer, 36 lasts, 3 quarters, 5 bushels, 2 pecks.

Thus, by the two foregoing examples it is seen, that reduction ascending and descending mutually prove each other.

How many barley corns will reach from London to Windsor, if they are 21 miles asunder?

First set down the whole distance, viz. 21 miles, then multiply by 8, the furlongs in a mile 8

And the product is 168 furlongs

Multiply this by 40, the poles in a furl. 40

And the product is 6720 poles

Multiply this by 11 the $\frac{5}{2}$ yards in a pole 11

And the product is 73920 half yards

Multiply this by 18, the inches in a half yard 18

591360

591360
72920

And the product 1320560 inches
Multiply this by 3, the barley corns in an inch 3
And the product is 3961680 barley corns

in 21 miles; the diſtance from London to Windſor.

Suppoſe it was aſked, how many barley corns in length will reach from London to York, which is commonly accounted to be 150 miles.

Firſt ſet down 150 miles, and multiply as in the laſt queſtion, and you will find the laſt product to be 28 millions, 512 thouſand barley corns.

Note, An Engliſh mile is 8 furlongs, (as above)
A Scottiſh and Iriſh mile, about a mile and an half Engliſh.

A Dutch and Poliſh Mile, three Engliſh miles and an half.

A French, Italian, and Turkiſh league, near 2 miles and three quarters Engliſh miles.

A German mile better than 4 Engliſh miles.

The Ruſſian mile about 3 quarters of an Engliſh mile.

The Arabian mile, an Engliſh mile and a quarter.

The Hungarian mile, is 5 miles Engliſh.

The Mogul's mile, a mile and a half Engliſh.

Land Meaſure.

In 14 acres, how many roods and perches?

14 acres
4 or multiply 14 by 160, the perches in an acre, gives 2240 perches.
56
40 perches 1 rood 40
Perches 2240

Proof

Proof.

In 2240 perches, how many acres?

Divide by 40, and then by 4, or divide 2240 by 160, and it gives 14 acres.

Square-Measure.

In 28 ſquare yards, 6 feet, how many ſquare feet, inches and ſquare quarters?

Square Yards Feet.

28 6

9 ſquare feet 1 yard, by 9

258 ſquare feet

144 inches 1 foot 144

1032
1032
258

37152 ſquare inches

16 ſquare qrs. 1 inch. 16

222912
37152

594432 ſquare quarters

Proof.

In 594432 ſquare quarters, how many ſquare inches, feet and ſquare yards?

Divide this number back by 16, you have ſquare inches; then by 144, you have ſquare feet; and laſtly by 9, you will have 28 yards, 6 feet.

Note, That 12 times 144, or 1728 ſolid inches, make a ſolid foot, ſo that you are to multiply ſolid feet by 1728, to bring them into ſolid inches, and on the contrary, to bring ſolid inches into ſolid feet, you muſt divide by 1728.

Time.

How many days, hours, minutes and ſeconds are expired ſince the birth of our Lord and Saviour Jeſus Chriſt, ſuppoſing it 1761 Years, 217 days, and 7 hours; allowing juſt 365 days to a Year.

years	days	hours
1761	217	7

Days in a year by 365 — take in 217, ſaying, 5 times 1 is 5, and 7 is 12, &c. in the next 2 figures.

8812
10567
5285

642982 days
by 24 and take in 7 hours

2571935
1285964

15431575 hours
by 60

925894500 minutes
60

55553670000 ſeconds or moments

Proof.

In 55553670000 ſeconds, how many minutes, hours, days and years?

Divide this by 60, 60, 24, and 365, and you will find 1761 years, 217 days and 7 hours.

Note, According to the table in time, 365 days 6 hours make a year; therefore as many years as are given, multiply them by 6, and add them to the hours.

If a lad be juſt twelve years old, how many minutes are ſince expired?

	12 years	12 years
	*365	6
	4380 days.	72 odd hours in 12 yrs.
	24	
	17520	
	8760	
	105120 hours.	
add	72 odd hours	
	105192	
	60	
	6311520 minutes.	

* *Note.* Though I ſet 365 under 12, yet I multiply 365 by 12, becauſe it is done in one line.

The RULE of THREE DIRECT.

IT is ſo called from its nature; becauſe there are always three numbers given to find a fourth, which fourth number muſt bear ſuch proportion to the ſecond, as the firſt number does to the third.

Reduce the firſt and third numbers into one name, and the ſecond numbers into the leaſt or loweſt name mentioned; then multiply the ſecond and third numbers together, and divide their product by the firſt number, the quotient is the anſwer of the queſtion, being of the ſame name as the ſecond number was brought into.

Note, The extream that aſketh the queſtion, muſt ſtand in the third place, the other in the firſt, and the mean number in the middle between them.

All queſtions in this rule of three, conſiſt of three numbers, whereof two, *viz.* the firſt and third, are always of one kind or denomination. As in this example.

If I give 20s. for 5 yards, what ſhall I give for 15 yards?

Now two of theſe are of the ſame kind, that is, the number of 5 and 15, which are both yards, which place thus. The number concerning which the queſtion is aſked, muſt be in the third place. Now

Now in this queſtion the 15 yards is the number, and the price of which the queſtion requires, the value; place it therefore in the third place.

Then ſeek out the other number of the ſame kind or denomination, which muſt be yards alſo, which in this queſtion is 5; ſet this in the firſt place, and then the other number (that is 20s.) will conſequently claim the ſecond place, and the Anſwer to the queſtion will be always of the ſame denomination with it, which here is 60 ſhillings.

Now the queſtion ſtated, according to the foregoing rule, ſtands thus,

If 5 yards coſt 20s. what will 15 yards coſt?

15

5) 300 (60

00

Multiply the ſecond number by the third, and divide the product by the firſt.

Note, That the three numbers are 5, 20 and 15.

Proof of the laſt Queſtion.

What ſhall I pay for 5 yards, when 15 yards are ſold for 60 ſhillings.

If 15 yards coſt 60 s. what will 5 yards coſt?

5

15) 300 (20 s.

30

0

What is the Intereſt of 85 pounds at the rate of 8 pounds per cent. per annum.

The number will be ſtated thus:

L. P.	*L. I.*	*L. P.*
100	8	85

In this example there are two numbers that are principal money, and one that is intereſt; therefore the intereſt (according to the rule) muſt ſtand in the middle, or ſecond place; the principal on which the intereſt dependeth, viz. 100 (8 l. being the intereſt thereof) muſt ſtand in the firſt place towards the left hand, and the other principal on

which the fourth number (which is the number ſought for) dependeth, muſt poſſeſs the firſt place towards the right-hand.

By theſe rules foregoing, you may with eaſe and certainty perform any operation in direct proportion: and for your further information take the examples following.

Example. If the intereſt of 100l. for one year be 8l. what is the intereſt of 85l. for the ſame time?

L. P.		*L. I.*		*L. P.*
100	——	8	——	85
		20		160
		160		5100
				85
			1|00)	136|00
			2|0)	136

Anſwer 61. 16s.

If 32 rundlets of brandy coſt 96l. what will 4 rundlets coſt at that rate?

run.		l.		runl.
32	——	96	——	4
		4		
		32) 384 (12l. anſwer.		
		64		
		0 remains		

If 24 yards of cloth coſt 28l. 12s. what coſt 178 yards thereof.

yards		l.	s.		yards
24	——	28	12	——	178
		20			
		572			
		178			
		4576			
		4004			
		572			
		101816			

(20

```
                 2|0
24) 101816 (424|2
    96      ------
    ---      212l. 2s. 4d. Answer.
     58
     48
     ---
     101
      96
      ---
       56
       48
       ---
        8 shillings remain.
       12 pence multiply.
       ---
24) 96 (4d.
    96
    ---
     0 remains.
    ---
```

Note. That as in the last example, when any thing remains that is reduceable to a lower denomination, after it is so reduced, it must be divided continually by the first number.

When any of the three numbers given happen to be of divers denominations, then you must reduce them into the lowest denomination. And if your first number require to be reduced, your third must be reduced likewise into the same denomination as the first: for the first and third number, before you begin your operation, must be always of one name or denomination.

Example, If 17 casks of rum cost 320l. 12s. what will 5 of those casks be worth?

casks l. s. casks
17 ——— 320 12 ——— 5
20

6412 ſhillings } multiply.
5 casks }

2|0

17) 32060 (1885
17

94 l. 5 s. 10 d. $\frac{5}{17}$

150
136

146
136

100
85

15 ſhillings remain } multiply.
12 pence in a ſhill. }

17) 180 (10 pence.
17

10 pence remain } mult.
4 farthings in a penny }

17) 40 (2 farthings.
34

6 farthings remain to be divided by 17.

Note, That what farthings remain to be divided by the common diviſor, (as in the laſt example) becauſe you can reduce them into no lower denomination, you may place them over your diviſor, as fractions of a farthing, which ſhall be explained when we come to vulgar fractions, &c.

When the firſt number of the three given, is but a unit, the operation is performed by multiplication only.

Example. If I give 14s. for a pound of thread, what will 340 lb. coſt me at that rate?

lb.

lb.		s.		lb.
1	———	14	———	340
				14
				1360
				340
			2|0)	4760
				Answer 2381.

Ex. At 17 l. 11s. 6d. per bag of currants, what cost 64 bags?

bags		l.	s.	d.		bags
1	———	17	11	6	———	64
		20				
		351	shillings			
		12				
		4218	pence			
		64				
		16872				
		25308				
		12)	269952			
		2|0)	22496			
			1124 l.	16s.	answer.	

When the third number of the three given (or that towards the right hand) is a unit; such operation is performed by division only; if the number need no reducing.

Example. If 30 pieces of broad cloth cost 460 l. what will 1 piece cost?

pieces		£.		piece
30	———	460	———	1
		3|0)	460	
		Answer	15 l. 6s. 8d.	

Example. If 9285 lb. coſt 619l. 10s. what will 1 lb. coſt at that rate?

lb.		l.	s.		lb.
9285	——	619	10	——	1
		20			
		12390			

9285) 12390 (1s.
9285

3105s. remain
12d. multiply

9285) 37260 (4d.
37140

120d. remain
4 farthings mult.

480 farthings remaining to be divided by 9285, the anſwer will then be 1s. 4d. oq. $\frac{480}{9285}$ the lb.

If one buſhel of rye coſt 4s. 2d. what will 2 laſts or 20 quarters coſt after that rate?

Firſt reduce the 4s. 2d. into pence, that is 50d. and the 20 quarters into buſhels, that is 160, and ſet the queſtion thus.

If 1 buſhel coſt 50d, what will 160 buſhels coſt?

160

3000
50

8000

The firſt number (or place being 1) will neither multiply or divide, then bring the 8000 into ſhillings by dividing by 12, as follows.

12) 8000

2|0) 66|6 8

33-6-8

For

For the proof of this, and the like queſtions, reduce the anſwer into pence to know whether your work be right, as appears in the work.

l.	s.	d.
33	6	8
20		
666		
12		
8000 Proof		

If a chaldron of coals (that is 36 buſhels) coſt 21s. what will one buſhel coſt?

Reduce the 21s. into pence, by reduction, which makes 252d. which divide by 36 thus,

36) 252 (7d.
252
0

ſo that at 21s. a chaldron, a buſhel will coſt 7d.

If I paid 432l. for 525 quarters of malt, what is the price of 1 quarter after that rate?

Which being ſtated, ſtands thus:

If 525 quarter coſt 432l. what will 1 quarter coſt?

In this queſtion you cannot multiply the ſecond number by the third, becauſe the third number or place is but one.

Therefore to perform this queſtion with eaſe, reduce 432l. into farthings by reduction, which makes 414720 farthings to be divided, which divide by 525, the quarters of malt; and the quotient, the anſwer 789 farthings; the remainder after the diviſion is ended, are but the parts of a farthing.

Laſtly, the 789 farthings being reduced, are 16s. 5d. $\frac{1}{4}$ therefore, if 525 quarters of malt (or tods of wool or goods) be ſold for 432l. one quarter will coſt 16s. 5d. $\frac{1}{4}$ after that rate. Or which is better, reduce the 432l. into ſhillings, and it gives 8640, which divide by 525, and the quotient is 16, and the remainder 240, which multiply by 12, the product is 2880, which divide by 525, and the quotient is 5 pence, and the remainder 255; that multiplied by 4, and the product 1020 divided as before, gives one farthing and $\frac{495}{525}$ parts of another farthing.

If a druggiſt bought 5 C. ¾ weight of drugs, which coſt him 136l. 13s. 8d. how may he ſell 1lb. weight without gain or loſs?

Reduce the Money into pence, it makes 39284d. for the dividend, and 5 C. ¾ weight into pound weight, by reduction, makes 644 pounds weight for the diviſor; then divide the 39284 by 644, and the quotient gives 61 pence, the price of one pound, viz. 5s. 1d.

Note, That what ſum of Money you deſire to gain, add it to the price, and work as above, to know what the price of one pound will be, ſo will you know what you get by every ſingle pound.

Suppoſe the yearly rent of 20l. belonged to 7 landlords. Reduce the 20l. into farthings, and they are 19200, which divide by 7, the quotient gives 2472 farthings ⅞ for each landlord, from which you may ſubſtract the taxes.

By the ſame Rule you may draw a compoſition of debts.

If one pound of Iron coſt 3 pence halfpenny, what will 7 C. 3 qrs. 17lb. coſt?

4

31 quarters of hundreds
28 pounds in a ¼ of an hundred.
—— Take in 17lb.

255
63

Pounds 885 in 7 C. 3 qrs. 17 lb.
14 farthings in 3d. ½

3540
885

4) 12390

12) 3097—½

2|0) 25|8—1

Anſwer 12 18 1 ½

Note,

Note, That this example may ſerve for a Rule to reduce hundreds, quarters and pounds into pounds: but moſt tradeſmen ſet the weights in ſhort, thus 7—3—17, inſtead of ſetting them as above 7C. 3qrs. 17lb.

Beſides, this way of proof; of reducing the total to farthings again, is moſt neceſſary for young learners, in moſt of the queſtions in the rule of three.

The ſingle Rule of indirect Proportion.

Whereas in the former Rule of direct proportion, the fourth number was always proportionably greater or leſſer than the third, as the ſecond was greater or leſſer than the firſt; but in this kind of proportion, 'tis juſt the contrary, for the greater the third number is, the leſs is the fourth, and the leſs the third is, the greater is the fourth; for which reaſon 'tis called indirect or reverſe proportion.

The method of ſtating any queſtion in this proportion, is the ſame with the direct proportion; but to find the number required this is the

Rule.] Multiply the firſt and ſecond numbers towards the left-hand together, and divide the product by the third, and the quotient ariſing is the anſwer.

A Rule to know whether a Queſtion propoſed is to be anſwered by the Rule of Proportion, direct or indirect.

Having ſtated the three numbers given, as was formerly directed, calling the middle number the mean, and the two outermoſt numbers the extreams, conſider from the nature of the queſtion, whether the third number requires more or leſs than the ſecond number; if it requires more, the leſſer extream is to be your diviſor; but if the third requires leſs, the greater extream is your diviſor. Now, ſo often as this leſſer, and the greater extream happeneth to be the third number, or that next the right-hand, ſo often is your proportion indirect; but when they are the firſt number, the proportion is direct: An example or two will make it plain.

Ex. If a board be 8 inches broad, how much in length will make a ſquare foot?

Say, if 12 inches broad require 12 in length to make a ſquare foot, what length will 8 inches broad require? It

will require more length, becauſe there is leſs breadth. See the work.

In. br.	long	In. br.
12	12	8
	12	
	8) 144	
Anſwer	18 inches in length	

Example. If when the price of a buſhel of wheat is 6s. 6d. the penny loaf weigheth 9 ounces, what muſt the penny loaf weigh when the price of a buſhel of the ſame wheat is 4s. 6d? The queſtion is thus ſtated.

s.	d	oz.	s.	d.
6	3	9	4	6
12			12	
75 pence			54 pence your diviſor	
9				

54) 675 (12 ounces
648

27 ounces remain } Multiply
20 penny weights }

54) 540 (10 penny weights

0	lb.	oz.	pw.
Anſwer	1	00	10

The double Rule of direct Proportion.

In this kind of proportion there are five numbers given to find a ſixth, which ſixth number will be of the ſame name as the third number was reduced into.

The Rule for ſtating the five Numbers given is;

Make that the third number from the left-hand, which is of the ſame denomination with the number ſought; then place the two numbers in the firſt and ſecond place to the left-hand, which are conjunctive in the Senſe of the queſtion

tion to the third, and the other two numbers in ſuch order, that the fourth may be of the ſame denomination with the firſt, and the fifth of the ſame with the ſecond; which done,

Rule.] Divide the product of the three next the right-hand, multiplied one into another, by the product of the two next the left-hand, and the quotient is the ſixth number ſought for.

Ex. If 100l. in 12 months gain 6l. what will 500l. gain in 8 Months?

L. P.	Months	L. I.	L. P.	Months.
100	12	6	500	8
12			6	
Diviſ. 1200			3000	
			8	

12|00) 240|00(20l anſwer
24

00 Remains

By the work you may perceive that 500l. will gain 20l. in 8 months at the rate of 100l. principal gaining 6l. intereſt in 12 months.

This queſtion, or any other of this nature, may be reſolved at two ſingle rules of proportion, thus: If 100l. require 6l. what will 500l require? The anſwer is 30l.

Then ſay, If 12 months require 30l. what will 8 months require? The anſwer (as before) is 20l.

The Double Rule of Indirect Proportion.

The Rule for ſtating your Queſtion.

Place the three firſt numbers towards the left-hand in the ſame order you did in the laſt Rule: And for the other two, place that the fourth, which is of the ſame denomination with your ſecond number, and conſequently the other next the right-hand: So will your firſt and laſt, *viz.* that required, be of one denomination, your ſecond and fourth of another, and your third and fifth of another, And,

The

The Rule for performing the Operation is,

Divide the product of the first, multiplied into the second; and that product into the fifth, by the product made of the third and fourth, and the quotient is the answer.

Ex. What principal will raise 20l. in 8 months, at 6 per cent. per annum?

L. P.	Months	L. I.	Months	L. I.
100	12	6	8	20

12 × 8 = 48 your divisor

1200 × 20 = L. In.

48) 24000 (500 quotient for answer; which proves the last operation.

0 Remains

The Proof of the Rules of Proportion.

Every kind of proportion I have discoursed of, may have the operations proved two ways.

Single Direct Proportion.

When four numbers are direct in proportion, the product made of the first and fourth, is equal to that of the second and third; otherwise the work is not rightly performed.

2dly, The second way is thus: As the fourth number is to the third, so is the second to the first; otherwise the work is not right.

Single Indirect Proportion.

When four numbers are in an indirect proportion, the product of the first and second, is equal to that of the third and fourth; otherwise there is an error in the work.

2dly, Thus: As the first is to the third, so is the fourth number to the second, in an indirect proportion, otherwise the operation is not rightly performed.

Double Direct Proportion.

When a sixth number is found in a direct proportion, the product of the first, second, and sixth, is equal to that of the third, fourth and fifth numbers; if the work is not erroneous.

2dly,

2dly, Thus: As the product of the fourth and fifth numbers is to the ſixth, ſo is the product of the firſt and ſecond to the third, in a double direct proportion.

Double Indirect Proportion.

When five numbers are given, and a ſixth found in an indirect or reverſe proportion, the product of the firſt, ſecond and fifth, is equal to that of the third, fourth and ſixth numbers, if the work is performed right.

2dly, Thus: As the fifth number is to the product of the third and fourth, ſo is the ſixth to the product made of the firſt and ſecond, by one ſingle direct proportion.

The Order of deducting TARE *and* TRET.

GRoſs, is the weight of a commodity, with the hogſhead, cheſt, box, or whatever elſe contains it.

Tare, is the allowance given for the weight of the caſk, hogſhead, &c.

Tret, is an allowance of 4 pounds in 104 pounds, for waſte and duſt on ſome ſort of goods.

	C.	qr.	lb.	
Ex. 11hhds. qt.	45	3	15	groſs, tare 14lb. per 112lb.
14 $\frac{1}{8}$				how many lb. neat?
	5	2	26	tare.
Anſwer	40	0	17	

1. Here 14 pounds tare being $\frac{1}{8}$ of 112 pounds, take $\frac{1}{8}$ of the groſs, the quotient gives the whole tare, which ſubtract from the groſs, gives the neat weight.

The operation is performed thus: Divide the groſs by 8, ſay 8 in 45, 5 times, and 5C. remains, which is 20qrs, and three is 23; then 8 in 23, 2 times, 7 qrs. remain, which turned into pounds by 28, and added to the 15lbs. make 211 lbs. then 8 in 211 is 26 times. So the tare is 5 C. 2qrs. 26 pounds.

	C.	qr.	lb.			s.	d.
Ex.	40	0	17	Neat at		22	6
	22			lb.			
	80			14 1/8		2—9—1/4	
	80			2 1/7		0—4—3/4	
	20			1 1/2		0—2—1/4	
	3—4 3/4			facit		3—4—3/4	
	90 3—4 3/4			price of 17lb.			
	45—3—1/4						

If the tare be 16 pounds in 112 pounds, take 1/7 of the grofs, and work as before.

If 18 pounds per 112 pounds, for tare, take the aliquot parts, viz.

For 16lb. take the 1/7 } Add the tare of 16, and the tare
For 2 take the 1/8 } of two together, the total fubtract from the grofs, and work as before.

lb. lb. lb.
If 20 in 112 for tare { for 16 take 1/7 lb.
for 4 take 1/4 of 16

2. When an allowance is made for tret, then (after the tare is fubtracted from the grofs) the remainder is called futtle, which divide by 26 (becaufe 4 pounds is the 26th part of 104, the allowance always given for tret) the quotient gives the tret, which fubtracted from the futtle, gives the neat weight.

	C.	qr.	lb.		lb.	lb:	lb.	lb.
Ex.	45	3	15	gr. tare	16 in 112	tret 4 in 104		
	16 1/7	6	2	06 tare				
	39	1	09	futtle		4) 104		
	4					26		
	157							
	28							
	1265							
	314							
	4405							4405

4405 pounds ſuttle.
169 tret

4236 neat pounds at 6d.

$6\frac{1}{2}$ 211|8s.

l. 105 - 18 - 0 facit

26) 4405 (169
26

180
156

245
234

11

3. If the allowance for tare be 8 pounds, 10 pounds, 12 pounds, in 112, or any other leſſer number, whether an aliquot part of 112 or not, in ſuch caſes divide the groſs into two parts by 2, which will make it half hundreds, then ſay 8 is $\frac{1}{7}$ of $\frac{1}{2}$ C. or of 12 pounds in 112 pounds.

Rule. From $\frac{1}{8}$ of the groſs, take $\frac{1}{7}$ of that 8th for tare at 12 per cent. When you have found tare, ſubtract it always out of the whole groſs.

I might enumerate examples, but theſe being ſufficient to inſtruct any ordinary capacity in tare and tret, I ſhall proceed next to the rule of practice.

RULES of PRACTICE.

The even Parts.

Of a pound			Of a ſhill.		Of a hund.	
s.	d.	l.	d.	s.	lb.	s.
10	0	is $\frac{1}{2}$	6	$\frac{1}{2}$	56	$\frac{1}{2}$
6	8	$\frac{1}{3}$	4	$\frac{1}{3}$	28	$\frac{1}{4}$
5	0	$\frac{1}{4}$	3	$\frac{1}{4}$	14	$\frac{1}{8}$
4	0	$\frac{1}{5}$	2	$\frac{1}{6}$	16	$\frac{1}{7}$
3	4	$\frac{1}{6}$	$1\frac{1}{2}$	$\frac{1}{8}$	8	$\frac{1}{14}$
2	6	$\frac{1}{8}$	1	$\frac{1}{12}$	7	$\frac{1}{16}$
2	0	$\frac{1}{10}$				
1	8	$\frac{1}{12}$				

1. When the given price is pence, take your parts in ſhillings, the product divided by 20 gives the anſwer in pounds.

Or, you may bring it into pounds at once, by cutting off the laſt figure, and by conſidering that 240 pence is one pound, whereof 8d. is $\frac{1}{30}$, 6d. is $\frac{1}{40}$, 4d. is $\frac{1}{60}$, 3d. is $\frac{1}{80}$, 2d. is $\frac{1}{120}$.

Examples.

d.		254lb. of tobacco at 1d.
1	$\frac{1}{12}$	2|1 2d.
	20	1—1—2 facit
		254lb. at 2d.
	$\frac{1}{6}$	4|2—4
	20	2—2—4 facit

d.		716 ells at 3d.
3	$\frac{1}{80}$	8·19
		215 at 4d.
4	$\frac{1}{60}$	3 1 1 8
6	$\frac{1}{40}$	643 8 6
		16·1·6

Here you may ſee that 254 pounds of tobacco, at 1d. a pound, divided by the $\frac{1}{12}$, gives 21s. 2d. and that divided by 20 (by cutting off the laſt figure, and taking $\frac{1}{2}$ of it) gives 1l. 1s. 2d. the price of 254 pounds of tobacco; and for 2d. the pound take the $\frac{1}{6}$, becauſe 2d. is the $\frac{1}{6}$ part of a ſhilling, and for 3d. a pound take $\frac{1}{4}$, and ſo for the others at 4d. and 6d.

2. When the given price is ſuch pence as are no even parts of a ſhilling, take firſt the greateſt even parts of a ſhilling, and then part of that part: Add them together and and divide the product by 20, or cut off the laſt figure, and take $\frac{1}{2}$.

d.		2121 ells at 5d.
4	$\frac{1}{3}$	707s.
1	$\frac{1}{4}$	176—9
5		883—9
		44—3—9 facit

748lb. at 7d.	
6d. is $\frac{1}{2}$ or	374
of which 1d. or $\frac{1}{6}$ is	62·4
	436
	l. 21—16—4

254 lb.

254lb. of tobacco at 9d. and 10d. $\frac{3}{4}$ a lb.

d		
6	$\frac{1}{2}$	127
3	$\frac{1}{2}$	63—6
9	$\frac{1}{2}$	190—6
20		9—10—6 fac.

d.	254 at 10d. $\frac{3}{4}$d.
$6\frac{1}{2}$	127 ſhills. in 254 6d.
$4\frac{1}{3}$	84—8 in 254 groats
$\frac{1}{2}\frac{1}{3}$	10—7 in 254 half p.
$\frac{1}{4}\frac{1}{2}$	5—3 $\frac{1}{2}$ in 254 farth.
	227—6 $\frac{1}{2}$
	11—7—6 $\frac{1}{2}$ facit

Demonſtration. In 254 pounds of tobacco at 10 $\frac{3}{4}$d per pound, there muſt be 254 ſixpences, which is 127 ſhillings, and 254 groats, which is 84s. and 8d. and 254 half pence, which is 10s. 7d. and 254 farthings which is 5s. 3$\frac{1}{2}$d. all theſe added together, make 227s. 6d. $\frac{1}{2}$, which divided by 20, gives the anſwer 11l. 7s. 6d. $\frac{1}{2}$.

d.		614lb. at 11d.
6	$\frac{1}{2}$	307
4	$\frac{1}{3}$	204—8d.
1	$\frac{1}{4}$	51—2
11		562—10
20		28—2—10 fa.

		563lb. at 11d. $\frac{1}{4}$
6	$\frac{1}{2}$	281—6d.
4	$\frac{1}{3}$	187—8
$1\frac{1}{2}$	$\frac{1}{8}$	70—4 $\frac{1}{2}$
		539—6 $\frac{1}{2}$
		26—19—6 $\frac{1}{2}$ fac.

If the given price be any number of pence above 1s. and leſs than 2s. take the aliquot parts in pence (as in the laſt precedent) to which add the given quantity for the 1s. and proceed as before.

Examples.

d.		254lb. at 15d.
3	$\frac{1}{4}$	63—6
	20	317—6
		15—17 facit.

	254lb. at 17d.
$\frac{1}{3}$	84—8
$\frac{1}{4}$	21—2
	159—10
	7—19—10 facit

d.		264 yards at 18d
6	½	132
		39|6
20		19—16—0 facit

	295 gall. at 19d.
½	147—6
⅛	24—7
	46|7—1
20	23—7—1 facit

d.		672lb. at 22¾d.
6	½	336
4	⅓	224
¾	1/24	42
		127|4
	20	63—14—0 fa

	456 ells at 25¼d.
½	228
½	152
¼	38
1/5	9—6
	88|3—6
20	44—3—6 facit

In 672lb. at 22d. ¾ a lb. I take ½ for the 6d. the ⅓ for 4d. and the ⅛ for the ¾, becauſe ¼ is the ⅛ of 6d. by which you will find that in 672 ſixpences, there are 336 ſhillings, and in 672 groats there are 224 ſhillings, and in 672 three farthings, there are 42 ſhilling.

4. If the given price be ſuch ſhillings as are an even part of a pound ſterling, take ſuch part a of the given quantity, and the quotient is pounds.

s. d.		Ells s d.
		433 at 1—8
1 8	1/12	36—1—8 facit
		674 at 2s. 6d.
	⅛	84—5—0 fac.

	Yards
	271 at 2s.
1/10	27—2—0 facit
	495 at 3s. 4d.
⅙	82—10—0 facit

In this firſt example of 433 ells, at 1s. 8d. I take the 1/12 becauſe 1s. 8d. is the 1/12 of 1l. and ſay 12 in 43 is 3 times, reſt 7, which makes the 3 to be 73, then 12 in 73 is 6 times, reſt 1, which is 1s. 8d. which I put down as above.

5. If

5. If the given price be such shillings and pence as are no even parts of a pound, multiply the given quantity by the number of shillings, and take the aliquot parts of pence, and proceed according to the second rule.

	Ells
	375 at 8s. 6d.
	8
	3000
½	187 6
	318|7-6
20	159-7-6 facit

	Ells
	493 at 15s. 10d.
	15
	2465
	493
½	246-6d.
⅓	164-4d
20	780|5-10
	390 5-10 fecit

	C. s. d.
	295 at 12 9
	12
	3540
½	147-6
½	73 9
	376|1-3
20	188-1-3 facit

	C. s. d.
	214 at 7 11
	7
	1498
½	107
½	53-6
⅓	35-8
	169|4-2
	84 14-2 facit

6. If your given price be any number of pounds, shillings and pence, reduce first your pounds and shillings into shillings, and proceed according to the last rule.

Pieces

	Pieces	l.	s.	d.
	754 at	4	3	7
	83	20		
	2262	83		
	6032			
½	377			
⅙	62	10		
2|0	6302|1	10		
	3151	1	10	*facit.*

	tuns	l.	s.	d.
	176 at	3	7	10
	67	20		
	1232	67		
	1056			
	11792			
½	88			
⅓	58	8		
2|0	1193|8	8		
	599	18	8	*facit*

7. If your given price be any number of pounds, and exceeding five pounds, then multiply your given quantity by the number of the pounds, and take your aliquot parts in ſhillings and pence. *viz.*

		cwt.	l.	s.	d.
		74 at	11	12	6
		11			
s.		8 4			
10	½	37			
2½	¼	9	5	0	
	l.	860	5	0	

	hhds.	l.	s.	d.
	394 at	16	16	3
	16			
	2364 } at 16l.			
	394 }			
½	197 at 10 s.			
½	98 10 at 5			
⅕	19 14 at 1			
¼	4 18 6 at 3d.			
l.	6624	2	6	*facit.*

8. If the given quantity be any number of C qrs or pounds; or tuns, cwt. qrs. and pounds, *&c.* work as before, where no part is, and take your aliquot parts in quarters and pounds, or in cwt. qrs. and pounds and add them to your firſt work. An example or two will make this plain.

Cwt.

	Cwt.		s.	d.
	75½	at	22	6
	22			
			11	3
	150			
	150			
½	37	6		
	11	3		
2|0	169|8	9		
	84	18	9	*facit.*

	cwt.		s.	d.
	63¾	at	12	10
	12 mult.			
			6	5
	756		3	2½
½	31	6		
½	21		9	7½
	9	7½		
2|0	81|8	1½		
	40	18	1½	

In the example of 63 cwt. ¾ at 12s. 10d. the cwt. I multiply the cwt. by 12. and take the parts in pence for the odd pence; then for the ¾ of a cwt. I first take the ½ of the price of a cwt. and that makes 6s. 5d. the price of ½ a cwt. and then I take the half of that, which gives 3s. 2d. ½ the price of ¼ of a cwt. Add them together, it gives the price of ¾ of a cwt. which is 9s. 7d. ½, and must be added to your first work. Two or three examples more will make it familiar and easy to any capacity.

	84cwt.	3qrs.	11lb.	at
	21			
	84			
	168			
½	42			
½	28			
	18	6		
	185|2	6		
	92	12	6	

——— 21s. 10d.

	½	10	11	
lb.	¼	5	5	½
7	¼	1	4	¼
4	⅐	0	9	¼
		18	6	

The price of 3 qrs. 11 lb.

Tun

Tun	cwt.	qr.	lb.		l.	s.	d.	
12	14	3	14	at	15	17	06	a tun
							12	
					190	10	00	
					½ 7	18	9	
					⅕ 3	3	6	
					⅛ 0	7	1 ¼	
					½ 0	3	1 ½	
					½ 0	1	1 ¾	
					202	06	01 ½	

There are other rules, such as barter, exchange, profit and loss, &c. but all of them being done either by the rule of three, or by rules of practice, it is therefore unnecessary to enlarge upon them, as the design of this book is calculated to treat upon other equally interesting and entertaining subjects.

NOTATION of VULGAR FRACTIONS.

A Fraction is a part or parts of an unit or whole thing, whether it be a yard, an ell, a foot, &c.

A fraction consists of two parts, numerator and denominator, thus:

$$\frac{4 \text{ numerator}}{7 \text{ denominator}}$$

1st. The numerator declares how many equal parts must be taken for the value of the fraction.

2d. The denominator declares how many equal parts the thing is divided, or imagined to be divided into

There are four sorts of fractions.

1st. Single or proper fractions; and these have their numerators less than their denominatoss, as, $\frac{3}{4}$ $\frac{7}{8}$.

2d. Compound fractions; and these have the word *of* interposed, as $\frac{7}{9}$ of $\frac{3}{8}$.

3. Improper fractions; and these have their numerators equal to, or greater than their denominators, as $\frac{3}{2}$, $\frac{29}{27}$.

4th. Mixt numbers; and these are composed of integers and fractions, as 9 lb. $\frac{3}{5}$

Rule

Rule. 1. To abbreviate or reduce a ſingle fraction into its leaſt term, by a common meaſure.

Note, A common meaſure is any number that will divide both numerator and denominator, and leave no remainder.

To find this common meaſure,

Rule, Divide the lower term by the upper, and that diviſor by the remaider following, till nothing remain, the laſt diviſor is the common meaſure, which will divide both numerator and denominator without a remainder; then divide both parts of the fraction by this common meaſure, and the quotients give the fraction required, reduced to its loweſt terms. But

Note, If by continuing the diviſion oftner than there are places of figures in the numerator, there is ſtill a remainder, the fraction is already in its loweſt terms, and cannot be reduced lower; again, if the common meaſure happens to be 1, the fraction is already in its loweſt terms; and when a fraction hath cyphers to the right hand, it may be abbreviated by cutting them off, as $\frac{4}{5}\frac{0}{0}$ is $\frac{4}{5}$.

With the common meaſure divide the ſingle fraction's numerator, the quotient is a new numerator; which being annexed together, is the ſingle fraction ſought, equal in value to the fraction given. And with the common meaſure divide the ſingle fraction's denominator, the quotient is a new denominator, which being annext together, is the ſingle fraction ſought, equal in value to the fraction given.

Example. Bring $\frac{374}{526}$ into its laſt terms.

(2

374	187
526	263

Anſwer $\frac{187}{263}$.

Proof	526	374
	187	263
	3682	1122
	4208	2244
	526	748
	98362	98362

Bring

Bring $\frac{465}{642}$ into its leaſt terms.

$$\begin{array}{r|l} 465 & 155 \\ \hline 642 & 214 \end{array} \quad (3$$

Anſwer, $\frac{155}{214}$ is equal to $\frac{465}{642}$.

Rule 2.

To reduce compound fractions to ſingle.

Multiply the numerators and denominators together, the products are new numerators and denominators, which being annexed together, is the ſingle fraction ſought, equal in value to the compound fraction given.

Examples.

Reduce $\frac{2}{3}$ of $\frac{4}{5}$ of a pound, to a ſingle fraction and its value.

$$\frac{2}{3} \text{ of } \frac{4}{5} \Big| \frac{8}{15} \text{ ſingle.}$$

$\frac{1}{5}$ of a £. is 4 s.
$\frac{4}{5}$ multiplied 4

16

$\frac{1}{3}$ of $\frac{4}{5}$ is 5 s. 4 d.
$\frac{2}{3}$ of $\frac{4}{5}$ multiplied 2

makes 10 8

20 s.
8

15) 160 (10 s. 8 d.
10
12

15) 120 (8

Anſwer $\frac{8}{15}$, or in value 10 s. 8 d.

Reduce $\frac{3}{8}$ of $\frac{2}{7}$ to ſingle.

$$\frac{3}{8} \text{ of } \frac{2}{7} \Big| \frac{6}{56} \Big| \frac{3}{28} \text{ ſingle} \quad (2$$

20s.

$\frac{1}{7}$ 2 10 $\frac{1}{4}$ $\frac{1}{7}$
2

$\frac{2}{7}$ 5 8 $\frac{1}{2}$ $\frac{2}{7}$

$\frac{1}{8}$ of $\frac{2}{7}$ 8 $\frac{1}{4}$ $\frac{2}{7}$
3

$\frac{3}{8}$ of $\frac{2}{7}$ 2 1 $\frac{1}{2}$ $\frac{6}{7}$

20s.
3
28) 60 (2s. 1d. $\frac{1}{2}$ $\frac{6}{7}$
4
12
28) 48 (1
20
4
28) 80 ($\frac{1}{2}$ (4
24 | 6
28 | 7

Rule. 3.

To bring mixt Numbers into improper Fractions.

Multiply the integral part by the denominator of the fractional part; adding the numerator, and placing the product over the fraction's denominator; so that fraction is the improper fraction sought, equal in value to the mixt Number given.

Examples.

Bring 3 $\frac{5}{9}$ to improper.
9
32
9 improper.

Bring 4 $\frac{13}{27}$ to improper.
27
121
27 improper.

Bring 7 $\frac{2}{9}$ to improper.
9
65
9

Rule 4.

To bring improper Fractions into whole or mixt Numbers.

Divide the numerator by the denominator, the quotient is the integral part; the remainders (if any) are the numerator, the diviſor, the denominator of the fractional part, which being annexed to the integral part, is the mixt number ſought = in value to the improper fraction given.

Examples.

Bring $\frac{32}{9}$ to mixt.

9) 32 ($3\frac{5}{9}$ mixt.

5

Bring $\frac{121}{27}$ to mixt.

27) 121 ($4\frac{13}{27}$ mixt.

13

Bring $\frac{65}{9}$ to mixt.

9) 65 ($7\frac{2}{9}$ mixt.

2

Rule 5.

To bring Fractions of unequal Denominations, to Fractions of equal Denominators.

Firſt, If there be any compound fractions, they muſt be brought to ſingle by Rule the ſecond.

Secondly, Multiply each numerator into all the denominators, except its own denominator, to get new numerators; multiply all the denominators into each other, and you have a common denominator.

Examples.

1. Reduce $\frac{2}{4}$ and $\frac{4}{7}$ to a common denominator.

Here 2 in the firſt multiplied into 7 the denominator of the ſecond, is 14, the new numerator for $\frac{2}{4}$; and 4 multiplied into 4 the denominator of the firſt, is 16, the new numerator for the firſt; and the two denominators 4 and 7 multiplied into each other is 28, the common denominator; which put under 14 and 16 reſpectively, the reduced fractions will ſtand thus, $\frac{14}{28}$ and $\frac{16}{28}$.

2. Reduce $\frac{1}{2}$, $\frac{3}{4}$ and $\frac{5}{8}$ to a common denominator.

Beginning with the firſt fraction I multiply the numerator of it with the other two denominators, ſaying 1 by 4 is 4, and

and 4 by 8 the next denominator, is 32, which is one new numerator; next I multiply 3, the numerator of the ſecond, by 2 the denominator of the firſt, whoſe product is 6, and that 6 by 8, the denominator of the third, produces 48, for another new numerator; laſtly I multiply 5, the numerator of the laſt, by 2, the denominator of the firſt, whoſe product is 10, and that by 4 the denominator of the ſecond, whoſe product is 40, for the third and laſt new numerator; thus three new numerators are obtained, *viz.* 32, 48 and 40, and the common denominator by multiplying the denominators 2, 4 and 8 into each other ſucceſſively, produce 64, which is the common denominator, and then the reduced fractions will ſtand thus, $\frac{32}{64}$, $\frac{48}{64}$, $\frac{40}{64}$. In this manner may any number of fractions be reduced to a common denominator.

Note, It is beſt to begin with the firſt fraction to the left-hand, and ſo on to the right, then all the new numerators will ſtand in the ſame order as the old, and when the common denominator is obtained and properly placed under them reſpectively, each new fraction will reſpectively be of equal value to the old, though in different terms.

3. Bring $\frac{5}{7}$, $\frac{3}{4}$ and $\frac{2}{3}$ to equal denominators.

5	3	2	7
4	7	7	4
20	21	14	28
3	3	4	3
60	63	56	84 c. d.
84	84	84	

VALUATION of VULGAR FRACTIONS.

Rule. Multiply the numerator of the fraction propounded, by the number of known parts of the next inferior denomination, which are equal to the integer, and divide that product by the denominator: So is the quotient the value of the fraction in that inferior denominator; if there happens to be any fraction remain, find the value thereof in the next inferior denomination, by the rule aforeſaid, and ſo proceed till you come to the leaſt known parts.

Examples.

1. Find the value of $\frac{12}{32}$ of a £ ſterling.

19	28	16
20 s. in a £.	12 pence in 1s.	4 farth. in 1d.
32) 380 (11	32) 336 (10	32) 64 (2 farthings
60	0	16
28		

ſo that the value of $\frac{12}{32}$ of a £. ſterling is 11s. 10d. $\frac{2}{4}$

2. What is the value of $\frac{10}{17}$ of a tun of wine.

10	4
252 galls. in a tun	8 pints in a gallons.
17) 2520 (148 galls.	17) 32 (1 pint, $\frac{15}{17}$
82	15
140	
4	

Anſwer 148 gallons, 1 pint, $\frac{15}{17}$.

3. Find the value of $\frac{23}{32}$ of a lb. troy.

23	20	16
12 oz. in a lb.	20 dwts. in an oz.	24 grs. in a dwt.
32) 276 (8 oz.	32) 400 (12 dwts.	64
20	80	32
	16	32) 384 (12 gr.
		64

Anſwer 8 oz. 12 dwts. 12 grs.

Addition of Vulgar Fractions.

When a ſimple Fraction is to be added to a ſimple.

Rule. If the fractions are not in a common denominator, reduce them to one by rule 5th, then add the numerators together, and divide the ſum by the common denominator, and the quotient is the ſum required; and if any thing remain, place it over the diviſor,

Ex. To $\frac{2}{3}$ add $\frac{5}{6}$.

Theſe fractions reduced to a common denominator, will ſtand thus, $\frac{12}{18}$, $\frac{15}{18}$. Add 12 to 15, the two numerators, make 27, which divided, as under, by 18, the common denominator, the quotient or anſwer is $1\frac{9}{18}$, or $1\frac{1}{2}$.

18) 27 (1 $\frac{9}{18}$.
18

9

The Reaſon of the Rule aforegoing.

The reaſon why you are firſt to reduce your fractions to a common denominator, before you can know their total ſum, is, becauſe the aggregate of moſt fractions could otherwiſe never be diſcovered; for a fraction is more or leſs, according as the numerator is more or leſs in proportion to its denominator; ſo the numerators are only to be added. Now ſuppoſe (as in the foregoing example) that $\frac{2}{3}$ is to be added to $\frac{5}{6}$; in one of theſe fractions, the unit is divided into 6 parts, and in the other into 3 parts; now if I ſhould add the numerators together, they make 7; but of which of theſe parts is not known; But if the fractions are reduced to a common denominator, their numerators will ſtill retain the ſame proportion to their denominators; and when the unit is divided in both fractions into a like number of parts, the ſum of thoſe parts contained in each fraction, is the true aggregate of both fractions; ſo $\frac{1}{4}$ and $\frac{2}{4}$ is $\frac{3}{4}$, $\frac{7}{12}$ and $\frac{5}{12}$ is $\frac{12}{12}$.

When a mixt Number is to be added to a mixt.

Rule. Work with the fractional parts as before, and afterwards add the ſum of the fractions to the ſum of the integers and you have your deſire.

Ex. To $4\frac{1}{2}$ add $48\frac{3}{4}$.

$\frac{1}{2}$ and $\frac{3}{4}$ reduced to a common denominator, will be $\frac{4}{8}$ and $\frac{6}{8}$, the sum of the two numerators is 10, which divided by 8, the quotient is $1\frac{2}{8}$, then

$$\begin{array}{r} 4 \\ 48 \\ 1\frac{2}{8} \\ \hline 53\frac{2}{8} \end{array}$$

the sum required.

When a compound Fraction is to be added to a simple one.

Rule. Reduce the compound fraction to a simple one, by your former directions; then find out the sum.

Ex. To $\frac{15}{37}$ add $\frac{3}{5}$ of $\frac{1}{4}$.

The compound fractions reduced to a simple one, are $\frac{15}{370}$ or $\frac{3}{74}$; the common denominator of $\frac{3}{74}$ and $\frac{15}{37}$, is $\frac{111}{2738}$ and $\frac{1500}{2738}$; the sum of the numerators is 261, so that $\frac{261}{2738}$ is the answer.

Subtraction of Vulgar Fractions.

When a single Fraction is to be deducted from a simple one.

Rule. Reduce the fractions to a common denominator as before; then take the numerator of the subtrahend from the other, and place the remainder over the common denominator, and you have the difference sought.

The reason of this rule is plain from what was said of addition, as to the common denominators; and if the denominators are alike, the difference between their numerators is the difference between the fractions; as may be proved by adding that difference to the fraction subtracted; as $\frac{1}{4}$ from $\frac{3}{4}$ rests $\frac{2}{4}$; for $\frac{2}{4}$ and $\frac{1}{4}$ is $\frac{3}{4}$.

Ex. From $\frac{3}{5}$ take $\frac{4}{8}$.

These fractions with a common denominator are $\frac{24}{40}$ and $\frac{20}{40}$; then take 20 from 24, rests 4, place the 4 over 40, and the answer will be $\frac{4}{40}$ or $\frac{1}{10}$.

When a compound Fraction is to be deducted from a simple Fraction.

Rule. Reduce the compound fraction to a simple one; and then work as in the last case.

Ex.

Ex. From $\frac{11}{14}$ take $\frac{2}{3}$ of $\frac{8}{9}$.

The compound fraction reduced to a ſimple, is $\frac{16}{21}$; then $\frac{11}{14}$ and $\frac{16}{21}$ reduced to a common denomination will be $\frac{351}{378}$ and $\frac{224}{378}$, deduct 224 from 351, reſts 127; ſo the anſwer is $\frac{127}{378}$.

When a ſimple Fraction is to be deducted from a whole Number.

Rule. Deduct the numerator from the denominator, and place the remainder over the denominator; then deduct 1 from the integer, and place the remainder before the remaining fraction, and you have your anſwer.

Ex. From 12 take $\frac{3}{6}$: The anſwer is 11 $\frac{4}{6}$.

Or thus:

Note, That the 1 borrowed from the 12 (in the firſt method) is $\frac{6}{6}$, ſo that if from $\frac{6}{6}$ you take $\frac{3}{6}$ there reſts $\frac{4}{6}$.

Multiplication of Vulgar Fractions.

When you are to multiply a ſimple Fraction by a ſimple one.

Ex. Multiply $\frac{3}{4}$ by $\frac{2}{3}$, anſwer $\frac{6}{12}$ or $\frac{1}{2}$.

Rule. Multiply all the numerators one into another, for the numerator of the product, and likewiſe the denominators for the denominator of the product.

Note, That multiplication in fractions leſſens the product, though in whole numbers it augments it.

Now the reaſon of the rule is, That if any fraction be multiplied by 1, it produces the fraction given; if by $\frac{1}{2}$, it produces half the fraction given, &c. So that to multiply $\frac{3}{4}$ by $\frac{2}{3}$, produceth $\frac{2}{3}$ of $\frac{3}{4}$, or $\frac{6}{12}$, or $\frac{1}{2}$, which is fully explained by the foregoing example.

When you multiply a whole Number by a Fraction.

Rule. Multiply the integer by the numerator of the fraction, and the product placed over the denominator is the anſwer.

Ex.

Ex. Multiply 56l. by $\frac{3}{4}$.

$$\begin{array}{r} 56 \\ 3 \\ \hline 168 \\ \hline 4 \end{array} \Big\} \text{ facit.}$$

This improper fraction $\frac{168}{4}$ reduced according to rule, makes but 42l. which is less than 56; and confirms what was before asserted, *viz.* that multiplication of fractions lessens the product, &c.

When you multiply a simple by a compound Fraction.

Rule. Reduce the compound fraction into a simple one, and work as in the last case but one.

Ex. Multiply $\frac{18}{19}$ by $\frac{5}{9}$ of $\frac{3}{7}$. Ans. $\frac{270}{1197}$ or $\frac{30}{133}$.

Division of Vulgar Fractions.

First, reduce all compound fractions to simple, and all mixt numbers to improper fractions, as before directed. Then multiply the numerator of the dividend, into the denominator of the divisor, for a new numerator; and the numerator of the divisor into the denominator of the dividend, for a new denominator, and you have the answer.

To divide a simple Fraction by a simple.

Ex. Divide $\frac{11}{12}$ by $\frac{4}{9}$.

$$\begin{array}{ll} 12 & 11 \\ 4 & 9 \\ \hline 48 \text{ den.} & 99 \text{ nom.} \\ \hline \end{array} \qquad \begin{array}{r|l} 48)\ 99\ (2 & \\ \hline 3)\ 3 & 1 \\ \hline 3)\ 48 & 16 \end{array}$$

Answ. $\frac{99}{48}$ or $2\frac{1}{16}$.

Here I multiply 11 into 9 for a new numerator, and 4 into 12 for a new denominator, which is $\frac{99}{48}$, here the answer is an improper fraction, but by changing the fractions, that is, if $\frac{4}{9}$ were to be divided by $\frac{11}{12}$, then the answer would be $\frac{48}{99}$: which is a simple fraction.

Note, When the division is a simple fraction, or less than unity, it answers the same end as common multiplication, that is, increases the value.

Observe the following example.

It is required to bring 32 guineas into farthings by division only.

Here

Here by Rule 2d, I reduce a farthing to the fraction of a guinea, and find it $\frac{1}{1008}$ for a diviſor; then I make 32 guineas a dividend, thus $\frac{32}{1}$: Now $\frac{32}{1}$ divided by $\frac{1}{1008} =$ 32256 farthings.

From whence ariſes this obſervation, That when any whole Number is divided by a ſimple fraction, the quotient will be ſo much larger than the dividend, as the diviſor is leſs than the unity or one; but on the contrary, when a ſimple fraction is to be divided by a whole number, then the quotient will be ſo many times leſs than the dividend, as the diviſion exceeds unity, viz.

To divide a whole Number by a ſimple Fraction.

Ex. Divide 14 by $\frac{1}{5}$.

$\frac{1}{5}$) 14 (70

——— Anſwer 70

When you divide a ſimple Fraction by a compound Fraction.

Rule. Reduce the compound to a ſimple fraction, and work as in the laſt caſe but one.

Ex. Divide $\frac{30}{133}$ by $\frac{3}{5}$ of $\frac{7}{9}$. The compound fraction is $\frac{15}{63}$.

$\frac{15}{63}$) $\frac{30}{133}$ is $\frac{1890}{8379}$ or $\frac{15}{19}$.

To divide a mixt Number by a mixt.

Divide $6\frac{1}{4}$ by $4\frac{3}{8}$.

$6\frac{1}{4}$	$4\frac{3}{8}$
4	8
25	35
4	8
25	35
8	4
200 Numer.	140 Denom.

14) 20 (1 integer

6

— is $\frac{6}{14}$.

14

Anſ. $\frac{200}{140}$ or $1\frac{3}{7}$

To

To divide a compound Fraction by a whole Number.

Divide $\frac{4}{5}$ of $\frac{10}{11}$ by 8.

10	5	40	8	1	8
4	11	—	—	40	55
—	—	55	1	—	—
40 n.	55 d.		—	40 n.	440 d.

(40

Answer $\frac{40}{440}$ | $\frac{1}{11}$

Having shewed the Way of multiplying and dividing fractions, I shall here give you a question or two in the Rule of Three, and then proceed to Decimal Fractions.

The RULE *of* THREE DIRECT, *in Vulgar Fractions.*

Having reduced your fractions as before directed, proceed in all respects as directed in the common Rule of Three. Or thus:

Having stated the question, and reduced the fractions multiply the denominator of the first Number by the numerator of the second; also multiply that product by the numerator of the third Number. and reserve this last product for a new numerator; again, multiply the numerator of the first number by the denominator of the second, and this product by the denominator of the third number, so shall this last product be a new denominator: This new fraction whose numerator and denominator is found, is the fourth number sought, which if it be a proper fraction, may be reduced into the known parts of the integer, by the Rule of Valuation. If an improper fraction, it may be reduced into a whole or mixt by rule 4th.

Ex. If $\frac{4}{5}$ of an Ell English cost $\frac{5}{11}$ of a £. what cost $51\frac{1}{5}$ ells?

$\frac{4}{5}$	4	$51\frac{1}{5}$
5	11	5
—	—	—
25	44	256
256	5	—
—	—	5
1280	220 Denom.	—
512	—	
—		
6400 Numer.		

6400

$\frac{6}{22}\frac{0}{0}$ of a lb. being an improper fraction, I reduce it to mixt.

22|0)640|0 (29 l. $\frac{2}{22}$

200

2

2
20

22) 40 (1s.

18
12

22) 216 (9
18

4

22) 72 (3

6

Anſ. 29l. 1s. 9d. $\frac{3}{4}$ $\frac{6}{22}$.

What coſt 79C. $\frac{1}{7}$ of ſugar, when 1lb. coſt 9d. $\frac{2}{3}$?

lb	d.	Cwt. lb.
If $\frac{1}{1}$	9 $\frac{2}{3}$	79 $\frac{1}{7}$ or 16
29	3	4
29	29	316
8864		28 lb.
79776	1	2534 taking in 16lb.
17728	3	633 for $\frac{1}{7}$.
257056 Numer.	3	8864
	1	1
	3 Denom.	

3) 257056

12) 85685-1

2|0) 714|0-5

Anſ. £. 357—5 $\frac{1}{4}$ $\frac{1}{3}$.

Two

Two Examples more for Practice.

If $\frac{2}{3}$ of 20lb. coſt 36l. leſs $\frac{3}{4}$ of 30l. what coſt $\frac{5}{6}$ of 40l. and $\frac{1}{2}\frac{2}{3}$ and $\frac{3}{4}$. Anſwer 35l. $\frac{22}{32}\frac{1}{0}$, which may be found by valuation.

When $\frac{1}{3}$ of 5 ells, leſs $\frac{1}{5}$ of 1 ell, coſt $\frac{1}{8}$ of 9l. $\frac{1}{2}$ leſs $\frac{1}{4}$ of a pound, what coſt $\frac{1}{6}$ of 6 ells, leſs $\frac{1}{6}$ of an ell?

Anſwer, 1l. $\frac{4}{3}\frac{1}{8}\frac{1}{4}$.

Notation of DECIMAL FRACTIONS.

A Decimal is any number, whether with cypher before it or not, having a dot before them, thus, .3..045, .005, or .2175, &c. are decimals.

A Table for the Notation of Integers and Decimals.

Integers.			
Fifth Place	7	Tens of Thouſ.	Of Unities.
Fourth Place	6	Thouſands	
Third Place	5	Hundreds	
Second Place	4	Tens (10	
Firſt Place	3	Unities (under	
	.		
Firſt Place	8	Tenth Parts	1, or Unity, &c.
Second Place	9	Hundredth Parts	
Third Place	3	Thouſandth Parts	
Fourth Place	1	Ten Thouſ. Parts	
Decimal Parts.			

In the above table you may obſerve, that the place of integers or whole numbers is ſeparated from the places of decimal parts of 1 (or unity) by a point or dot, ſo the number on the left-hand of the point expreſſes 73285 integers or unities, but the lower number expreſſes only 8237 parts of 1, or an integer, ſuppoſed to be divided into 10000 equal parts. In like manner this number 5.8 ſignifies 5 integers and 8 tenth parts of an integer; and 285.82 ſignifies 285 integers, or unities, and 82 hundred parts of an integer, &c.

Reduction of Vulgar Fractions into Decimals.

The proportion is thus: As the denominator of the vulgar fractions given, is to its numerator; ſo is 100, or 1000, &c. to the numerator of a decimal, whoſe denominator is 100, 1000, &c.

Ex.

Ex. Reduce $\frac{3}{8}$ of a pound ſterling, to its correſpondent decimal.

If 8 ——— 3 ——— 1000

3

8) 3000

·375

Anſwer, $\frac{375}{1000}$

Or thus, Annex a cypher at diſcretion to the numerator, and divide by the denominator.

Reduce $\frac{9}{11}$ of a £. ſterling, to its correſpondent decimal.

11) 900000

.81818 (2

the remainder is ſo inconſiderable, they being leſs than $\frac{1}{100000}$ of an unit, there is no occaſion for any notice being taken of them.

Anſwer, $\frac{81818}{100000}$.

Reduce $\frac{1}{6}$ of $\frac{5}{7}$ to its correſpondent decimal.

1 6 42) 500000 (.11904

5 7 ....

5 Num. 42 Denom. 80

380

200

32

Anſwer, $\frac{11904}{100000}$

Reduce $\frac{6}{7}$ of $\frac{4}{9}$ to its correſpondent decimal.

6 7 63) 2400000 (38095

4 9 ....

24 Num. 63 Denom. 510

600

330

15

Anſwer, $\frac{38095}{100000}$.

To reduce the known Parts of Money, Weight, or Measure to a Decimal.

Add cyphers to the loweſt denomination (making a dot between the cyphers and figure) and divide by the parts contained in the next higher denomination, then place the next higher denomination before that quotient (with a dot between) and divide by the parts contained in the next higher denomination; and ſo go on, and your laſt quotient will be the decimal required.

Ex. 1. What is the decimal of 12s. 6d. $\frac{3}{4}$?

4) 3.00000
12) 6.75000
2|0 12.56250
.628125 Anſ.

Here, according to the rule, I add cyphers to the loweſt denomination, 3 farthings, and divide by 4; then I place the 6d. before that quotient, and divide by 12. Laſtly, I place 12s. before this laſt quotient, and divide by 20, viz. by 2, without cutting any figure or cypher off to the right-hand; for there is no occaſion for that.

See the proof of this in example 1, next page.

2. What is the decimal of 18s. 9d. $\frac{1}{2}$? Anſ. 93958.

Note 1. If you would know the decimal of any number of ſhillings, from 1 to 19, obſerve this general rule: If the ſhillings be even, take the $\frac{1}{2}$ of them is the decimal. Thus, the decimal of 16s. is 8, and of 18s. is 9. &c. But if the ſhillings be odd, multiplying them by 5, gives the decimal. Thus the decimal of 5s. is .25; for 5 ſhillings is $\frac{1}{4}$ of a £, and .25 is $\frac{1}{4}$ of 100. So alſo, the decimal of 17s. is .85, and 11s. is 55, and the decimal of 1s. is .05; for there muſt be two places when the ſhillings are odd.

A Rule to find the decimal of Shillings, Pence and Farthings, at once; a £. Sterling being the Integer.

1. For ſhillings. Add cyphers to the ſhillings, and divide by 20.

2. For the Pence. Add cyphers to the given pence, and divide by 240, the pence in a £. pricking off according to the rule of diviſion. Thus you will find the decimal of 6d. .025 and of 3d. .0125.

3. For

3. For farthings. Add cyphers, and divide by 960: Thus the decimal of 3 farthings is .003135.

Note, The same is to be observed in finding the decimal of weight, measure and time, by adding cyphers to the given denomination, and dividing by the parts contained in the integer.

A decimal TABLE *of* ENGLISH MONEY.

A pound the integer.		A pound the integer.	
S.	*Decimals.*	*D.*	*Decimals*
19	.95	11	.045833
18	.9	10	.041666
17	.85	9	.0375
16	.8	8	.033333
15	.75	7	.029166
14	.7	6	.025
13	.65	5	.020833
12	.6	4	.016666
11	.55	3	.0125
10	.5	2	.008333
9	.45	1	.004166
8	.4		
7	.35	Farth.	
6	.3	3	.003125
5	.25	2	.002083
4	.2	1	.001042
3	.15		
2	.1		
1	.05		

What is the value of .7691 of a £.

By the help of the above table it may be performed thus:

	.7691	
Take	.75	for 15s.
	.0191	remainder
Take	.0166	next lowest, 4d.
	.0025	remainder
Take	.0010	next lowest, 2q.
	.0015	

Decimal Tables of Troy and Averdupois Weight.

Troy weight. A pound the integer	
Ounces.	Decimals
11	.916666
10	.833333
9	.75
8	.666666
7	.583333
6	.5
5	.416666
4	.333333
3	.25
2	.166666
1	.083333

This table of ounces serves for inches.	
Pen. wts	Decimals
10	.041666
9	.0375
8	.033333
7	.029166
6	.025
5	.020833
4	.016666
3	.0125
2	.008333
1	.004166

Grains.	Decimals.
20	.003472
10	.001736
9	.001562
8	.001389
7	.001215
6	.001042
5	.000868
4	.000694
3	.000521
2	.000347
1	.000173
½	.000086

Averdupois weight 112 pounds the integer	
Qu. 3	Deci. .75
2	.50
1	.25
lbs 20	Dec .178571
10	.089286
9	.080357
8	.071428
7	.0625
6	.053571
5	.044643
4	.035714
3	.026786
2	.017857
1	.008928
oz. 10	Dec .005580
9	.005022
8	.004464
7	.003906
6	.003348
5	.002790
4	.002232
3	.001673
2	.001116
1	.000558
Drams	Decimals
10	.000348
9	.000313
8	.000279
7	.000244
6	.000209
5	.000174
4	.000139
3	.000104
2	.000069
1	.000034
	.000017

Decimal Tables of Time and Cloth Measure.

TIME. One Year the Integer.	
Day.	Decimals
300	.821918
200	.547945
100	.273973
90	.246575
80	.219178
70	.191781
60	.164383
50	.136986
40	.109589
30	.082192
20	.054794
10	.027397
9	.024657
8	.021918
7	.019178
6	.016438
5	.013699
4	.010959
3	.008219
2	.005479
1	.002739

TIME One Day the Integer.	
Hours.	Decimals.
20	.833333
10	.416666
9	.375
8	.333333
7	.291666
6	.25
5	.208333
4	.166666
3	.125
2	.083333
1	.041666
Mins.	Decimals.
50	.034722
40	.027777
30	.020833
20	.013888
10	.006944
9	.00625
8	.005555
7	.004861
6	.004166
5	.003472
4	.002777
3	.002083
2	.001388
1	.000694

CLOTH MEASURE. A yard the integer.

Quarters.	Decimals.
3	.75
2	.5
1	.25
Nails.	Decimals.
3	.1875
2	.125
1	.0625

Note, If there be ever ſo many places in the decimal, the three firſt are ſufficient, and all that are required in buſineſs. But to come nearer the truth, you may add one or two more.

Decimal Table of liquid and dry Meaſures.

Liquid, A gallon the integer.		Dry, A quarter the integer.
Pints.	Decimals.	Buſhels.
7	.875	7
6	.750	6
5	.625	5
4	.5	4
3	.375	3
2	.25	2
1	.125	1
Gills.		Pecks.
3	.09375	3
2	.0625	2
1	.03125	1
		qrs pecks
	.023437	3
	.015625	2
	.007812	1
		Pints.
	.004859	3
	.003906	2
	.001953	1

*** The uſe of the foregoing tables is very plain, one column in each table contains the ſhillings, ounces, buſhels, &c. and againſt the ſaid number in the other column, the decimal parts, anſwering thereto. Thus againſt 9 ſhillings in the firſt table you will find .45. Againſt 9 ounces in the ſecond table .75.

If

If the exact number is not found in the tables, you muſt add the numbers together, of which it is compounded. Thus if the decimal parts of fifteen grains are ſought in the ſecond table; the decimal 10 grains is .001736. and 5 is .000868, the ſum will be .000260, the decimal ſought.

To tell the Decimal of Shillings, Pence and Farthings, by inſpection.

Note, If the ſhillings be even, take the half of them, which will be the firſt decimal figure; then bring the pence and farthings into farthings, and if they be leſs than 5, join them to the firſt decimal figure, ſo have you a decimal of three places; but if the farthings be more than 5, ſet down 1 more than they really are; if they be above 40, ſet down 2 more than they amount to; ſo have you the decimal nearly.

Examples.

1. Let it be required to find the decimal of 14s. 6d. $\frac{3}{4}$ and 18s. 9d. $\frac{1}{2}$, as before. Here I ſay, the $\frac{1}{2}$ of 14 is 7, the firſt figure; then 6d. $\frac{3}{4}$ is 27 farthings, but being above 5, I ſet down 28 farthings by the ſide of the 7, ſo is the decimal .728 as before; and ſo for the other.

2. What is the Decimal of 6s. 10d. $\frac{1}{2}$? Anſw. .344.

Here the $\frac{1}{2}$ of 6s. is 3, and 10d. $\frac{1}{2}$ is 42 farthings; but being above 40, I, by the rule, ſet down 2 more, viz. 44; ſo is the decimal .344 nearly.

Note, when the ſhillings are odd, multiply them by 5, and bring the pence and farthings into farthings, as before, and ſet the firſt figure under the ſecond figure of the decimal belonging to the ſhillings, encreaſing them by 1, or 2, as before, you have the decimal.

3. What is the decimal of 17s. and 6d. $\frac{3}{4}$, and 11s. 10d. $\frac{1}{4}$?

17 multiplied by 5 is 85	11 × 2 = 55
6$\frac{3}{4}$ more 1 farthing 28	10d. $\frac{3}{4}$ + 2 + 45
Anſw. .878	.595

The next caſe is a proof to this, and more uſeful.

To

To find the Value of a decimal in Money, Weight or Meaſure.

Multiply the decimal by the parts contained in the integer, and prick off as many figures as there are places in the given decimal, and the figures towards the left-hand will be whole numbers, and thoſe that are pricked off are decimals, which decimals only muſt be multiplied by the next denomination: Thus go on, multiplying and pricking off the ſame number of decimals; ſo will the figures towards the left-hand be the value required.

Examples.

1. What is the .628125 of a £ ſterling?

.628125
20
s. 12.562500
12
d. 6.7500
4
qrs. 3.00

Anſwer, 2s. 6d. ¾. See Ex. 1. of the laſt caſe.

2. What is the .7615 of a guinea?

.7615
21
7615
15230
s. 15.9915
12
d. 11.8980
4
¾.5920

Anſwer, 15s. 11d. ¾.

3. What

3. What is the .1756 of a ton?

20

cwt. 3.5120
4

qrs. 2.0480
28

3840
960

lb. 1.3440
16

oz. 5.5040

Anſwer, 3 cwt. 2 qrs. 1 lb. 5 oz.

4. What is the .09715 of a barrel?

36

58290
29145

Gall. 3.49740
8

Pints 3.97920

Anſwer, 3 galls. 3 pints and $\frac{9}{10}$, or very near 3½ gall.

To tell the Value of any Decimal in Shillings, Pence, and Farthings, by Inſpection only, at a £ſterling the Integer.

Double the firſt decimal place towards the left-hand, and if the ſecond figure be under 5, then the firſt figure doubled will be the ſhillings; but if the ſecond figure be 5, or above 5, then you muſt add 1 ſhilling more to thoſe you doubled; and what remains over the 5 carry to the next figure, placing it before it in your mind, and thoſe will be the farthings, which, if under 5, ſet down what they

they amount to; if above 5, not exceeding 40, then abate or ſet down 1 farthing leſs than they are; and if above 40, ſet down 2 leſs than they really are, and you have the value required.

Examples.

1. What is the value of .728125 of a £. Anſwer 14s. 6d. $\frac{3}{4}$.

Here I double the firſt figure 7, which is 14, for the ſhillings, and then I ſay, 28 farthings is 7d. but I abate 1, becauſe it is above 5, ſo it is 14s. 6d. $\frac{3}{4}$.

2. What is the .39525 of a £. Anſw. 7s. 10d. $\frac{3}{4}$.

Here I ſay twice 3 is 6, and the next figure being above 5, I count 1 more, which is 7 ſhillings; then there is 4 remains from the 9, which I carry to the 5, which is 45 farthings; but being above 40, I abate 2, and call it 43 farthings, which is 10d. $\frac{3}{4}$.

3. What is .0672 of a £ ſterling? Anſwer 1s. 4d.

Here the cypher doubled is 0; but the ſecond figure being 6, that is 1 ſhilling and 1 over, which I carry to the 7, is 17 farthings, and abating 1 farthing is 16, or 4 pence; which you may prove by multiplying the decimal by 20, 12 and 4, pricking off, as before directed.

Examples for Exerciſe.

4. What is .8145 of a ton? Anſw. 16cwt. 1qr. 4lb. 7oz. 10dwt. .88

5. What is the .275 of a lb troy? Anſ. 3oz. 6dwts.

6. What is the .0729 of a year, at 365 days the integer? Anſwer, 26 days, 12 hours, 12 minutes. 14 ſeconds.

Addition of Decimal Fractions.

TO ſuch as well underſtand the notation of decimal fractions, all the varieties of their numeration, *viz.* addition, ſubtraction and ſo forth, will be as eaſy as the operations by whole numbers.

2. When divers decimal fractions are given to be added together, they muſt firſt of all be orderly placed one under another, according to the doctrine of their notation, *viz.* primes under primes, ſeconds under ſeconds, thirds under thirds, &c.

3. Having

3. Having placed the decimals, and drawn a line underneath in the manner aforesaid, add them together, beginning with the outermost rank, towards the right hand (as hath been taught in addition of whole numbers of one denomination.)

53.7486	.5674	3.7894
70.245	.0017	4.36427
63.07	.64	5.15305
24.6	.548	6.9764
211.6636 total.	1.7571 total.	20.28312 total.

The Reason of this Rule.

The reason of adding decimals thus, will appear from that of vulgar fractions, after they are reduced to a common denominator, in which decimals always are the denominator to the decimal of the most places, being the common denominator, which is the divisor, and the sum of the numerator is the dividend.

Subtraction of Decimals.

Place the numbers as in addition, and proceed as in subtraction of whole numbers of one denomination.

From 139.0949	From 460.994	From 4389.0
Take 47.947	Take 194.8462	Take 210.3467
Rem. 91.1479	Rem. 266.1478	Rem. 4178.6533

This rule is the very same with that in vulgar fractions. Decimals always have a common denominator, as it is said before; so that the difference between the numerators or numbers given, is the numerator of the answer, as in vulgar fractions. *N. B.* To supply the vacant places or figures, you put or imagine cyphers.

Multiplication of Decimals.

In this rule you are to place the factors, and work as in whole numbers: But after you have found the product, observe this general

Rule. As many decimal places as you have in both the factors, so many places you must prick off towards the right-

right-hand of the product. And if so many places happen not to be contained in the said product, (as it will happen when you multiply two factions together, that are of little value) you are to make up the number by adding cyphers towards the left hand of the said product.

The reason of this rule is plain, it differing nothing from that given for multiplying vulgar fractions: for by multiplying the sums given together, you multiply the numerators; and by cutting off as many as are in both decimals given, you multiply the denominators, and divide that of the numerators by the product of the denominators. Thus, to multiply $\frac{1}{2}$ by $\frac{3}{4}$, is the same as .75 by 5, and 100 by 10, *viz.* $\frac{75}{100}$ by $\frac{5}{10}$, for 5 times 75 is 375; and 10 times 100 is 1000. So the product is $\frac{375}{1000}$ or .375.

Examples.

1. Multiply 2.316
by 17.02

4632
162120
2316

Product 39.41832

2. Multiply .23456
by .032

46912
70368

Product .0075059²

3. Multiply .12345
by 28

98760
24690

Product 3.45660

4. Multiply 24.87
by 24.87

17409
19896
9948
4974

Product 618.5169

Division of Decimals.

Division is the same with that of whole numbers; all the difficulty thereof is, to know how many decimal places to

to prick off towards the right-hand of the quotient: For which take this

Rule. Take Notice how many decimal places you have in the dividend, and how many in the divisor; and as many as the difference is, so many places you must prick off to the right hand of the quotient: but if so many places be not in the quotient, as the said difference, make up the number by prefixing cyphers towards the left hand.

Decimal fractions may also be divided as vulgar; as,

Example. Divide 24.56789 by 8.765

8.765) 24.86789 (283

73378

32589

Remains 6294

Note, That in this and most other Examples in division of decimals, it will be necessary to place cyphers toward the right hand of the dividend; and that you may know what number of cyphers to put to the right hand of any dividend, observe this

Rule. Consider how many decimal places you would have in the quotient (as 3 is sufficient, if it is not afterwards to be multiplied by any thing) and also how many decimal places you have in your divisor, and make so many decimal places in the dividend by adding cyphers, if need require; as in the example, where 2.57 is divided by 12.3; and because I would have three decimals in the quotient, and there are two in the divisor, I must make 5 decimal places in the dividend.

1.23) 2.57000 (2.089

1100

1160

53 Remains.

Which being less than 1 thousandth part of a unit, is not material. So much for division.

The rule of three and other rules, being the ſame with thoſe in whole numbers, obſerving multiplication and diviſion of decimals, I ſhall not encumber the book with them, but proceed to the extraction of the ſquare root.

The EXTRACTION *of the* SQUARE ROOT.

A Square number is a number multiplied by itſelf, *viz.* any figure or figures multiplied by the ſame figure or figures, the product is the ſquare of that number: Thus, $2 \times 2 = 4$, the ſquare of 2; and $9 \times 9 = 81$, the ſquare of 9.

The root is that from which the ſquare is formed: Thus, I told you before, the ſquare of 2 is 4, and the ſquare of 9 is 81; therefore, *vice verſa*, 2 is the root of 4, and 9 is the root of 81, as appears by the following table, which ſhould be readily known.

Roots.	1	2	3	4	5	6	7	8	9	10	11	12
Squrs.	1	4	9	16	25	36	49	64	81	100	121	144

I will ſhew you the whole proceſs, which pray obſerve.

Suppoſe it were required to extract the ſquare root of 3136, or any other figures.

Firſt, I ſet down the figures thus, 3136, and beginning at the units place, I make a dot or point over it, and alſo over every other figure towards the left hand, as you ſee in the margin; and pray obſerve, that as many dots as you have, ſo many figures the root will always conſiſt of, which here are 2. Then

I ſeek (by the table) the neareſt root to the figures contained in the firſt point of figures, *viz.* in 31, and find it to be 5, which I place in the quotient, thus, 3136(5, which figure 5 is called the root, or part of the root. Then

Square the root, that is multiply it by itſelf, and place it under the ſaid firſt point, as in common diviſion, and ſubtract it therefrom, and bring down the next point, *viz.* 36, and place it by the ſide of the remainder, it is 636, which is called the reſolvend, as in the margin. Again,

```
3136(5
25
----
636 reſolv.
```

I double

I double the quotient figure or root 5, which is 10, and making another crooked line, I place it for a divisor right against the resolvend, as in the margin.

```
      3136(5
      25
      ----
Div 10)636 Resolvend.
      ------
```

Lastly, I now ask, (as in division) how many times 10 I can have in the resolvend (always rejecting the last figure) that is, how many times 10 are contained in 63, and find it 6 times, which 6 I put in the root by the side of the 5, and also by the side of the divisor 10, which makes 106; then I multiply 106 by 6, which is 636, and nothing remains: Thus I find the square root of 3136 to be 56.

```
      3136(56 root. Ans.
      25
      ----
  106)636
      636
```

Proof.

I square the root 56, that is, I multiply it by itself, *viz.* 56 by 56, and it gives 3136.

2. What is the square root of 56169?

```
      56169 (237 root. Answer.
      4
      ---
   43)161 resolvend.
      129
      ---
  467) 3269 new resolvend.
       3269
       ----
          0
```

Here I proceed the same as in example 1, by making a dot over every other figure, and find the nearest root of the first point 5 to be 2, which I square and place under 5, and there remains 1, to which I bring down the next two figures 61, and it is 161; then I double the root 2, it is 4, which I place on the left hand for a divisor. Then I ask how many times 4 are contained in 16, which, though it be 4, yet upon trial will be but 3 times (for you must observe, it will often be less then it looks to be) which 3 I place in the quotient, and also by the side of the divisor 4,

which makes it 43; then I multiply 43 by 3, and it is 129, and ſubtracting 129 from 161, I have 32 remains, to which I bring down the next point or two figures 69, and it is 3216g, which I call a new reſolvend; then I double the root 23, which is 46, for a new diviſor, and aſk how many times 46 I can have in 326, and find it 7, which I place in the quotient, and alſo after 46, and it is 467, which multiplied by 7, gives 3269. Thus I find the ſquare root of 56169 to be 237. And for a proof I find 237 multiplied by 237=56169.

If you conſider well the manner of the working the laſt example, if you have ever ſo many figures you may do it with eaſe. The remainders, if any, matters not at all; only when you come to prove the work, after multiplying the root by itſelf, you muſt add the remainder to the product, and it will be equal to the given number, if the work be right.

Suppoſe there is a tower 114 yards high, ſurrounded with a moat 20 feet broad; how long muſt a ſcaling ladder be to reach from the outſide of the moat, to the top of the tower.

Anſwer, 342 feet $\frac{400}{441}$.

Any two Sides of a right angled Triangle being given to find the third Side.

This depends upon a mathematical propoſition, in which it is proved, that the ſquare of the hypothenuſe, or longeſt ſide of a right angled triangle, is equal to the ſum of the ſquares of the baſe and perpendicular, that is, of the other two ſides.

See fig. 12. *in the copper plate the beginning of menſuration.*

Caſe 1. Let the baſe or ground B A repreſent the breadth of a moat or ditch, and the perpendicular B C the height of a caſtle, tower or city wall; and the hypothenuſe A C the length of a ſcaling ladder.

In this figure, the baſe A B is ſuppoſed to contain 40 yards; and the perpendicular, or height of the tower or wall, 30 yards; what length will the hypothenuſe A C, of the ſcaling ladder be?

Rule.

Rule. The ſquare root of the ſum of the ſquares of the baſe and perpendicular, is the length of the hypothenuſe. See the work.

1600 the ſquare of the baſe 40
900 the ſquare of the perpendicular 30

the ſum 2500 (50 yards the root or length of the ſcaling ladder
25

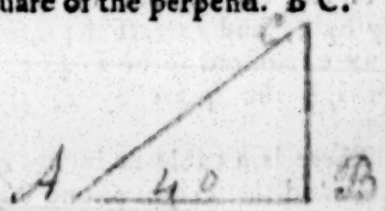
(0)

Caſe 2. If the length of the baſe, or breadth of the ditch were required; then the ſquare root of the difference of the ſquares of the hypothenuſe and perpendicular, is the length of the baſe, or breadth of the ditch or moat.

Thus 2500 the ſquare of the hypothen. A C
900 the ſquare of the perpend. B C.

The diff. 1600 (40
16

(0)



Caſe 3. If the height of the tower or perpendicular B C were required; then the ſquare root of the difference of the ſquares of the hypothenuſe and baſe, is the height of the perpendicular B C.

A ladder 40 feet long may be ſo planted, that it ſhall reach a window 33 feet from the ground on one ſide of the ſtreet; and without moving it at the foot, will reach a window of 21 feet high on the other ſide of the ſtreet: the breadth of the ſtreet is required. Anſw. 56 feet, $\frac{6}{10}$.

The Uſe of the Square Root applied to various Branches of the Mathematics.

A general Rule to find the third ſide of any Triangle, having two Sides given.

Note, The perpendicular is that part which is right up; the baſe is that which lies next you, and the hypothenuſe is the ſlanting ſide, called alſo the diagonal line.

1. Having the perpendicular and baſe to find the hypothenuſe, add the ſquare of the baſe and perpendicular together, and extract the ſquare root of them, you have the hypothenuſe.

2. Having the hypothenuſe and perpendicular, or baſe given, to find the other ſide.

From the ſquare of the hypothenuſe take the ſquare of the baſe or perpendicular, and the ſquare root is the other ſide required.

Suppoſe A B and C are three towers. A and B bear eaſt and weſt diſtance 49 miles; and B and C bear north and ſouth diſtance 127 miles. I demand the diſtance between A and C. Anſw. 136 $\frac{3}{2}\frac{4}{3}\frac{}{7}$.

If the difference of latitude is 78 leagues, and the departure 45 leagues, what is the diſtance? Anſw. 90 leag. $\frac{9}{1}\frac{}{3}$.

Suppoſe a rope 55 inches round, I demand the compaſs of another rope, that is double the ſtrength?

Square the compaſs of the rope, it is 25, which multiply by 2, and extract the ſquare root, it is 7.07 inches. If it were required to be 3, 4, 5, or 6 times the ſtrength, then multiply the ſquare by 2, 3, 4, 5, or 6, and extract the root.

There is a cable 10 inches round, which weighs 21 cwt. I demand the weight of one 8 inches round? Anſ. 13.44 C.

As the ſquare of the one, viz. 100, is to the ſquare of the other, viz. 64. ſo is the weight of the one to the other, viz. 13.44 cwt.

The EXTRACTION *of the* CUBE ROOT.

A Cube is that which has length, breadth and thickneſs. Thus, ſuppoſe a piece of wood to be cut into the form of a dye, which is equal every way in length, breadth and thickneſs, ſuch as figure 6 in the plate, the beginning of menſuration, is called a ſolid, and by name a cube.

For any number multiplied by itſelf is a ſquare; ſo any number multiplied twice into itſelf is a cube number: Thus the cube of 2 is 8: For 2×2 is 4, and $4\times2=8$: So alſo the cube of 5 is 125: For $5\times5\times5=125$. Thus you ſee 8 is the cube, and the root of that cube. Alſo,

125

125 is a cube number, whoſe root is 5, as appears by the following table of both ſquares and cubes.

Roots.	1	2	3	4	5	6	7	8	9
Squares.	1	4	9	16	25	36	49	64	81
Cubes.	1	8	27	64	125	343	216	512	729

How the cube root is extracted, and a rule for it (I look upon) would be too tireſome for your memory, as there are many parts contained in it: I ſhall therefore take an example or two, and proceed in the whole proceſs, or order of the work.

1. I demand the cube root of 32768? Anſw. 32.

Firſt, I make a dot over every third figure, beginning at the units place as in the margin, and as many dots as you have, ſo many places the root will contain, which here are two places, 32768. Then

Seek the root (or neareſt root) to the firſt point 32, which (by the table) is 3, and place it in the quotient, which is the firſt figure in the root, thus 32678 (3. Then

Cube the figure which you put in the quotient, (that is $3\times3\times3=27$) and place it under the firſt point 32, and ſubſtract it therefrom, thus

32768 (3
27

5

Again, To the remainder 5 bring down all the figures of the next point (viz. 768) and place them by the ſide of the remainder, and call this the reſolvend, thus

32768 (3

5768 reſolvend.

Then triple the quotient, (that is, always multiply it by 3, be it what it will) and place the units place of it under

under the tens place of the reſolvend, and call that the triple quotient, thus

32768 (3
27

5768 reſolvend.

9 triple quotient.

Now ſquare the quotient (that is 9) and triple that ſquare, that is 27, and place the units place of it under the ten's place of the triple quotient; that is, place it one figure more to the left hand, and call it the triple ſquare, then add theſe two together, and call it the diviſor,

32768 (3
27

5768 reſolvend.

9 triple quotient.
27 triple ſquare.

279 diviſor.

Then, aſk how many times the diviſor is contained in the reſolvend, rejecting the laſt figure as you did in the ſquare root; that is, aſk how many times 279 you can have in 576, the reſolvend, which here is 2, and place this alſo in the quotient, which now is 32.

32768 (32
27

5768 reſolvend.

9 triple quotient.
27 triple ſquare.

279 diviſor

Again, cube the figure laſt put in the quotient, (viz. 2, whoſe cube is 8) and place the units place under the units place of the reſolvend.

32768

32768 (32 root.
27

5768 reſolvend.

9 triple quotient.
27 triple ſquare:

279 diviſor.

8 cube of 2.

Then, Multiply the ſquare of the figure laſt put in the quotient (viz. 4) into the triple quotient, viz. ×9 (which is 36) and place the product one figure more towards the left hand.

32768 (32 root.
27

5768 reſolvend.

9 triple quotient.
27 triple ſquare.

279 diviſor.

8 cube of 2
36 the ſquare of 2 by triple quotient

Again, multiply the triple ſquare (viz. 27) by the laſt figure, put in the quotient, and place alſo this one figure more towards the left hand, which is 54.

32768 (32 root. Anſw.
27

5768 reſolvend.

9 triple quotient.
27 triple ſquare.

279 diviſor.

8 cube of 2. (quo.
36 ſquare of 2 by triple
54 triple ſq. by the r. 2.

Laſtly, add theſe three laſt numbers together as they ſtand and call it the ſubtrahend, which is 5768 equal to the reſolvend.

5768 ſubtrahend.

Thus

Thus is the work finiſhed, and the cube-root of 32768 is found to be 32.

Proof.

For the proof of this I multiply 32 by 32, and it is 1024, which 1024 I multiply by 32 again, and have 32768.

Note 1. If the ſubtrahend had been larger than the reſolvend, then I muſt put a leſs figure in the ſecond place in the quotient, and proceed as before directed.

Note 2. When there is another point of figures to take down, firſt ſubtract the ſubtrahend from the reſolvend, and to the remainder bring down the next point, calling it new reſolvend, or ſecond reſolvend: Then proceed to work as after the firſt reſolvend, in every reſpect.

Another Method to extract the Cube Root, which is, in many Reſpects, eaſier and ſhorter than the former.

Let us take the laſt example 32768.

Firſt, Find the root of the firſt point, as before, and ſubſtract it therefrom, and to the remainder bring down the next point of figures and call it reſolvend, or dividend, which you pleaſe. Then

Square the root, and multiply it by 300 for a diviſor; and, as in common diviſion, ſee how many times it is contained in the dividend, and place it in the quotient or root accordingly. Then

Multiply the diviſor by the laſt figure of the root, and place it under the dividend (units under units) drawing a line between them.

Again, Square the laſt quotient figure, and multiply it by the firſt quotient figure, and that product multiply by 30, and ſet this under the laſt work, units under units, &c. Then

Cube the laſt figure, and put the units of this under the units of the laſt, and add theſe three together in order, as they ſtand, which is the ſubtrahend; which, if it be more than the reſolvend, or dividend, you muſt put a leſs figure in the quotient, and proceed as before; but if it be leſs than the dividend, ſubtract it therefrom, and the work is done, for two figures in the root: But if there be more figures, bring them down to the remainder, and call it a new dividend; and ſquare the whole root, and multiply it by

by 300, for a new diviſor, and put the figures in the quotient. Then ſquare this laſt figure, and multiply it by the foregoing figures in the root, and then by 30. Laſtly, cube the laſt figure, and place it as before directed, and the work is done for three places. The ſame to be obſerved for more figures.

Thus the laſt example 32768 (32 root. Anſw.

27

Diviſor 2700) 5768 Dividend.

5400
360
8

5768 Subtrahend.

I ſhall give you one ſum at large, the firſt way; and leave you to prove it by the ſecond; and then proceed to the uſe of the cube root.

Extract the cube root of 94862375.

94862375 (456
64

30862 reſolvend.

12 triple quotient.
48 triple ſquare.

492 diviſor.

125 cube of 5.
300 ſquare of 5 by triple quotient.
240 triple ſquare by the root 5.

27125 ſubtrahend.

3737375 new reſolvend.

135 triple quotient.
6075 triple ſquare.

60885 new diviſor.

216 cube of 6.
4860 ſquare of 6 by triple quotient.
36450

3693816 new ſubtrahend.

4359 remainder.

The Uſe of the Cube Root.

There is a cube, whoſe ſolidity is 1372 feet, I demand the ſide of a cube whoſe ſolidity is 4 times leſs? Anſ. 7

Divide 1372 by 4, and extract the cube root.

If a bullet 2 inches diameter weighs 3 lb. what will one of the ſame metal weigh which is 8 inches diameter? Anſ. 192 lb.

Solids being in triple proportion to their ſides, or diameters, it is thus found.

As the cube of the given diameter is to the weight, ſo is the cube of the other diameter to the weight of the other required.

Suppoſe a ſhot of four inches diameter weighs 18 lb. I demand the diameter of another, that weighs 144 lb. Anſ. 8 inches. This is the reverſe of the laſt queſtion.

There is a ſphere or globe whoſe ſolid content is 250047 inches: I demand the ſide of a cube, whoſe ſolidity ſhall be equal to the ſolidity of the globe? Anſw. 63 inches.

A country farmer lent his neighbour out of his hay-ſtack 20 feet of hay in length, breadth and depth, and his neighbour brought him home 10 feet at one time, and 10 at another: How is the balance, and who debtor? Anſwer, 6000 feet due to him that lent it; he having received but $\frac{1}{8}$th.

Suppoſe a ſhip, 300 tons burthen, 75 feet by the keel, 29 $\frac{1}{2}$ feet by the beam, and 14 feet deep in the hold; I demand the dimenſions of another ſhip of the ſame make, of 500 tons burthen?

Say,

Say, As 300 ton is to 500 ton, ſo is the cube of the given keel to the cube of the ſhip's keel required, the cube root of which is 88.9 feet.

And thus for the other two dimenſions, which I leave for your practice.

Having given the grounds of arithmetic, I come next to ſhew in as few words, and with all the plainneſs I can,

The ART of

BOOK-KEEPING,

After the *Italian* Method, by Way of Double Entry.

THERE is good reaſon why moſt men of buſineſs are deſirous to be maſters of this art; for if kept regular and preciſe, a perſon may at any time know the ſtate of his affairs, and conſequently what he is worth to a farthing.

My Meaning in this rule ſhall be fully explained in all the uſual caſes, when I have ſhewed the books neceſſary for keeping accounts after this method.

The books of principal uſe are as follows, *viz.*

First, The WASTE-BOOK,

Wherein every thing is to be entered, whether received or paid, bought or ſold, &c. without omiſſion of any thing; together with the day of the month and the year of our Lord, inſerted in the middle of the page: And is of no farther uſe, but only to remind the book-keeper, that ſuch and ſuch buſineſs is to be poſted into the journal; and is ruled with one marginal line, and three lines for pounds, ſhillings and pence.

2. The JOURNAL

Is a book into which every thing is poſted out of the waſte-book, which is here to diſtinguiſh debtor or creditor, and ought to be expreſſed in a better ſtile, or phraſe of ſpeaking more merchant like; it being as it were a preparatory to the ledger, whereby is ſhewed what accounts are to be entered debtor in the ledger too, or creditor by other accounts. In this book the day of the month is alſo placed

in the middle of the page, which is never ſummed up; unleſs it contains only one man's accounts; and is ruled as the waſte book.

3. The LEDGER

Is the chief book of accounts, and that in which all accounts meet, and are placed debtor on the left hand page, and creditor on the right: ſo that the folios on the right and left hand of this book are numbered alike; becauſe one and the ſame account is placed on both ſides. In this book the day of the month is placed in a narrow column towards the left-hand of the page, and the name of the month to the left hand of the day. At the head of each folio in this book is written the name of the city or place where the books are kept, with the year; all which you will ſee in the example of theſe three books after the ſeveral caſes; the denomination of moſt of your accounts to be entered in this book, are thus ranked and explained.

Firſt place your account of ſtock at the beginning of your ledger, viz. Make ſtock debtor to what you owe, when you begin to keep your books, let the debt be upon what account ſoever, in theſe words, on the left-hand folio as it lieth before you.

Stock, Debtor.

To ſundry accounts, as per inventory, ſo much as the ſame is; or if you owe only one ſum, ſay ſtock is Dr. as per inventory to that ſum; and firſt of all having taken an inventory of all you are worth in caſh, wares or debts, (as you ſee in the inventory following) write on the right-hand folio the ſum of what you are worth, as appeareth by the particulars in the inventory, making ſtock creditor in theſe words.

Per Contra Creditor.

By ſundry accounts as per inventory, mentioning the value of all the caſh, wares and debts you have,

The next thing (on the ſame folio) is the account of caſh, where note, that before you enter any thing debtor or creditor in your ledger, you are to look whether you have any thing of the ſame denomination in your inventory, which if you have, you muſt, the firſt thing in the account, make it debtor to ſtock for ſo much as is in the inventory of that account, as ſuppoſe you have in ready caſh at the time of taking your inventory 2000 l. you muſt make, firſt

Caſh

Caſh Debtor,

To ſtock ——————————— l. 2000 : 00 : 00

And afterwards make the ſame accompt debtor to all perſons from whom you receive any money, whether the ſame is in part or in full for wares ſold, &c But if you ſell for ready money, you muſt make caſh debtor to the wares; and the ſaid perſons of whom you receive, or thing for which you receive money, muſt be made in their own accompt creditor by caſh, according to the general rule foregoing, as ſhall be ſhewn in the caſes following.

Next to the accompt of caſh in your ledger, you may put what accompt occurs in practice; as the accompt of men, wares, voyages, &c.

If a perſon buys wares of you, and pays not ready money, you are to make ſuch perſon debtor to ſuch wares, and the wears creditor by ſo much ſold ſuch a perſon.

When you ſhip off goods to your factor, to be ſold for your accompt, you are in this book to keep an accompt of the voyage in a place by itſelf, as you do the reſt, making *voyage to ſuch a place (mentioning the port or place your factor reſides at) conſigned to ſuch a perſon (mentioning your factor's name) debtor* to the goods ſhipped, to cuſtom, inſurance, and all other charges of the ſame; and the contrary accompts creditor by voyage.

When you have advice that the goods ſhipp'd are ſold, then in ſome one place make *factor at ſuch a place, my accompt current (which is the accompt running between your factor and you, concerning the goods ſent him) debtor* to voyage; and the voyage creditor by the accompt current, &c.

In this book is alſo kept the accompt of profit and loſs, by itſelf, thus:

Profit and Loſs Debtor.

To what money you pay and have nothing for it; as to rebate of money paid you before due; to abatement by compoſition, when a perſon is inſolvent; to houſhold expences, ſervants wages, &c. And

Per Contra Creditor.

By all the caſh you receive, and deliver nothing for the ſame; as by money received with an apprentice; by rebate for paying a ſum before due; by legecy left you by a friend, and by the ſum you gain by every particular com-

modity you deal in, or perſon you deal with, by ſhips in company, by voyages, &c.

At the beginning of this book, you are to have an alphabetical table of all the perſons names you deal with, and commodities you deal in; with the accompt of profit and loſs, voyages, accompts current, or in company, &c. referring to the folio in the ledger, where ſuch accompt ſtandeth.

4. The CASH-BOOK

Is that wherein you enter all the money you receive, upon any accompt, on the left hand folio, making caſh debtor to the thing you receive it for, &c. as was ſaid before; and on the right hand folio enter all the caſh you pay, creditor by the perſon you pay it to (mentioning whether it is in full or in part) or thing you pay it for, and place the day when you receive or pay it, as in the ledger, and when you ſee convenient, as once in a month or oftner, ſum up your accompt of caſh received and paid, carrying the ſum to the accompt of caſh in the ledger; which accompt, without this book would ſwell too big, provided you ſhould enter the particulars there.

5. It is neceſſary you ſhould keep a book to enter all the caſh in, which you expend in houſe-keeping, and once in a month transfer the ſame to the debtor ſide in the ledger, thus:

Houſhold Expences, Debtor.

To caſh, ſo much as you bring from your book of houſhold expences; and caſh creditor, by houſhold expences, in your caſh book. In this book is likewiſe proper to enter the charge of apparel, rent of your dwelling-houſe, pocket expences, ſervants wages, &c.

6. A Book of Charges of Merchandize,

Wherein you muſt enter the charge of cuſtom, warehouſe-room, poſtage of letters, porterage, cartage, wharfage, &c. and once in about a month, make a ſum and transfer it into creditor ſide of your caſh book, making a refer to the folio of the book of charges of merchandize.

7. A Book of Factories or Invoices,

Which is an accompt of goods ſhipt or ſent by you to your factor, or received from him, &c. In this book, enter the goods ſent or ſhipt to be ſold for your accompt, with the value and time when ſent, on the left hand folio; and

and as you receive advice of their ſale, enter the ſame on the right hand folio; ſo may you readily ſee how the accompt ſtands in that particular.

8. Beſides theſe books, the merchant ought to have a book wherein to enter a copy of all letters he ſendeth or receiveth upon account of trade alſo.

9. A pocket-book to take the minutes of what buſineſs you do abroad, for the eaſe of your memory, and to avoid error.

10 A ſmall book wherein to enter all bills of exchange the merchant accepteth, with the ſum and time when payable, and to whom; or if foreign bills, the foreign coin, exchange, and what the ſame is in ſterling money; and as you pay the ſame, write [*Paid*] in the margin, againſt the bill paid.

Laſtly, A book of receipts, wherein to take all the receipts for money you pay: Expreſſing firſt the day of the month, then the ſum received, and for what, or whether in full or in part, and for whoſe uſe, which muſt be ſigned by the perſon receiving.

Thus have I given you an accompt of all the books neceſſary for a merchant to keep; alſo the nature of the accompt to be inſerted in each book, and the uſe thereof. I ſhall next proceed to give ſuch particular directions as will enable the book keeper to find proper debtors and creditors, for moſt, if not all the caſes he will meet with in the practice of merchandize, viz.

How to enter in your Ledger proper Accompts in domeſtick Trade.

Firſt, When money is received, make caſh Dr. to the party that paid it (if for his own accompt) and the party creditor by caſh.

Secondly, If money is paid, make the receiver Dr. (if for his own accompt) and caſh Cr.

Thirdly, When goods are bought for ready money, make the goods Dr. to caſh, and caſh Cr. by the goods.

Fourthly, When goods are ſold for ready money, juſt the contrary, *i. e.* caſh Dr. and the goods Cr.

Fifthly, When goods are bought at times, goods bought are Dr. to the ſeller of them, and the ſeller Cr. by the goods.

Sixthly, When goods are ſold for time, juſt the contrary, *i. e.* the party that bought them is Dr. to the goods, and the goods Cr. by the party.

Seventhly, When goods are bought, part for ready money, and the reſt for time; Firſt, make the goods Dr. to the party for the whole: Secondly, make the party Dr. to caſh, for the money paid him in part of thoſe goods.

Eighthly, When goods are ſold, part for ready money, and the reſt for time: Firſt make the party Dr. to the goods for the whole. Secondly, Caſh Dr. to the party received of him in part of thoſe goods.——Or either of theſe two laſt rules may be made Dr. to ſundries; as goods bought Dr. to the ſelling man for ſo much as is left unpaid, and to caſh for ſo much paid in ready money: And ſo on the contrary for goods ſold.

Laſtly, When you pay Money before it is due, and you are to have diſcount allowed, make the perſon Dr. to caſh for ſo much as you pay him, and to profit and loſs for the diſcount; or making the receiving man Dr. to ſundries as before.

To balance an Accompt when fully written.

If the debtor ſide is more than the credit, make the old accompt creditor by the new: If the contrary, make the new accompt Dr. to the old; but in caſe the debtor ſide is leſs than the creditor, make the old accompt debtor to the new, and the new accompt creditor by the old

In accompt of company, in which you have placed more received of another than his ſtock, then add as much on the debit ſide as you find on the credit ſide, that you may have ſo much debit in the new account as you put in, and as much credit as you received.

In accompts of merchandize, you muſt enter the profit and loſs, before you make the old account creditor by the new, and the new debtor to the old for the remainder of goods unſold.

Obſerve that all accounts of goods are cloſed by profit and loſs, provided they are all ſold, if not, the accompts of goods muſt be made Cr. by balance, for the goods remaining unſold, and then cloſed by the accompt of profit and loſs.

Obſerve, likewiſe, that dollars, crowns, and other foreign coins, are to be kept with a double column, as well

as

as their value in £. *s. d.* which have been paid or received by bills of exchange, for goods ſold by factors or correſpondents, or bought by them.

When an Account is full written, how to remove it to another Folio.

Add up the Dr. and Cr. ſides and ſee the difference, which place to its oppoſite. As ſuppoſe the Dr. ſide exceeds the Cr. then you are to write balance on the Cr. ſide of the old account, to anſwer the line on the Dr. ſide of the new account.

The METHOD *of keeping the* WASTE-BOOK, JOURNAL *and* LEDGER.

The WASTE-BOOK

Of me M. D. of London, merchant; containing all my dealings from the firſt day of July, 1765.

In the Name of GOD, *Amen.*

An inventory taken July the 1ſt; containing all my eſtate in caſh, wares and debts, which I have at this day; and alſo what debts are owing by me to others.

My whole eſtate this day in money, wares and debts is 11505l. 10s. *viz.*

	l.	s.		
In caſh for trading occaſions	10,000			
Alſo 21 pipes of ſherry at 25 l. 10s. per pipe	535	10		
30 hhds of tobacco at 10 l. —	300			
20 caſks of brandy at 15 l. —	300			
⅛ part of the ſhip James ——	200			
Andrew Smith owes me per note on demand —	30			
Benj. Jones owes me per note on due Oct. 4. —	40			
Edw. Harret owes me per bond, at 6 per cent. —	100			
			11505	10

London,

London, July 1, 1765.

	l.	s.	d.
I owe as follows	l.	s.	d.
To John Smart on demand	40	0	0
To S. Eaſy, due 15 Dec. next	10	0	0
To Simon Noble ——	30	0	0
To Sir Peter King ——	200	0	0
		280	
5th, Andrew Smith has paid me in full —		30	
7th, Paid John Smart in part ——		20	
8th, Bought of John Careleſs a pipe of port wine, for ready Money ——		27	
9th, Sold Simon Saveall, 3 hhds of tobacco, for ready money, at 11l. 5s, —		33	15
11th, Bought of James Long, 3 hhds of ſugar, at 19l. 14s.			
Paid ⅓ down ——	29	11	0
Reſt due on demand —	29	11	0
		59	2
Sold to Edward Ellis 12 pipes of ſherry, at 30l.			
Received in ready money	70	0	0
Reſt due at one month	290	0	0
		360	
12th, Lent Simon Johnſon, upon bond, for 3 months at 6l. per annum ——		200	

London,

London, July 13, 1765.	l.	s.	d.
The owners of the ſhip James, bring in their account of freight, which amounts to 688 l. My $\frac{1}{8}$ part which I have received, is —— ——	86		
14th, My couſin Kind is dead, and has left me a legacy of 500 l. to be paid in a year to come, by the executors A. B.	500		
15th, Bought of David Williams, and ſent as adventure to Barbadoes, in the ſhip Swift, Capt. Thompſon, maſter, conſigned to Peter Careful, the following goods marked and numbered as per margin, viz,			
P C N° 1. 7 pieces of holland at 18 l.	126	0	0
48 yards of ſcarlet cloth at 22 s. ——	52	16	0
Paid charges on ſaid goods	7	4	0
	186		
16th, Paid as a premium to John Evans for inſuring 200 l. on my aforeſaid adventure	10		
18th, Bartered with John Pennyleſs, one pipe of ſherry, at 32 l. for two bales of muſlin of the ſame value ——	32		
19th, Paid my landlord one quarters rent, due at Midſummer day laſt ——	20		

THE

THE JOURNAL ENTRIES.

The Journal of me M. D. of London, merchant; containining all my dealings from the first day of July, 1765.

In the Name of GOD, *Amen.*

An inventory taken July the 1st, containing all my estate in cash, wares and debts, which I have at this day; and also what debts are owing by me to others, viz.

	Sundry accounts Dr. to stock in the whole 11505 l. 10s.	l.	s.	d.		
1	Cash for trading occasions	10,000	0	0		
1	Sherry 21 pipes at 25 l. 10s.	535	10	0		
1	Tobacco for 30 hhds. at 10l.	300	0	0		
1	Brandy for 20 casks at 15 l.	300	0	0		
1	Ship James for $\frac{1}{8}$ part	200	0	0		
2	And. Smith per note on demand	30	0	0		
2	Ben. Jones per note due Oct. 4	40	0	0		
2	Ed. Harret per bond, at 6 per cent. —— ——	100	0	0		
					11050	10

London,

	London, July 1, 1765.			l.	s.	d.
1	Stock Dr. to ſundry accompts in all 280l.					
3	To John Smart on demand —		40l.			
3	To Samuel Eaſy due 15 October —		10			
3	To Simon Noble —— ——		30			
3	To Sir Peter King —— ——		200			
			——	280		
	5th,					
1	Caſh Dr. to Andrew Smith	30	0 0			
2	To received of him in full					
			——	30		
	7th,					
3	John Smart Dr. to caſh ——		20l.			
1	Paid him in part —— ——			20		
	8th,					
3	Port wine Dr. to caſh ——		27l.			
1	Paid John Careleſs for one pipe ——			27		
	9th,					
1	Caſh Dr. to tobacco ——		33l. 15s.			
2	For 3 hhds ſold Simon Saveall ——			33	15	
	11th,					
3	Sugar Dr. to ſundries —	59	2 0			
1	To caſh paid in part for 3 hhds at 19l. 14s. ——	29	11 0			
3	To James Long for the reſt on demand ——	29	11 0			
3			——	59	2	
1						
1	Sundry Dr. to ſherry ——		360l.			
3	Caſh received in part for 12 pipes at 30l. per pipe ——		70l.			
5	Edward Ellis for the reſt at 1 month		290l			
			——	360		

London,

	London, July 12th, 1761.	l.	s.	d.
3/5	Simon Johnſon Dr. to caſh —— 200l.			
	Lent him upon bond for three months at 6l. per cent. per annum ——	200		
	13th,			
1/2	Caſh Dr. to ſhip James —— 86l.			
	Received by ⅛ part of 688l. freight —	86		
	14th,			
3/5	A. B. executor of couſin Kind Dr. to profit and loſs 500l.			
	For a legacy left me by my ſaid couſin, due at one year ——	500		
	15th,			
3/5	Voyage to Barbadoes Dr. to ſundries —— —— 186 0			
	To David Williams for 7 pieces of holland at 18l. —— 126 0			
	48 yards of ſcarlet cloth at 22s. 52 16			
	To caſh paid charges —— 7 4			
		186		
	16th,			
3/5	Voyage to Barbadoes Dr. to caſh 10l.			
	Paid John Evans for inſuring 200l. on my adventure —— ——	10		
	18th,			
4/5	Muſlin Dr. to ſherry —— 32l.			
	For 2 bales received in barter for 1 pipe	32		
	19th,			
4/1	Houſhold expences Dr. to caſh 20l.			
	Paid one quarter's rent due at Midſummer laſt —— ——	20		

The

The ſhort lines ruled againſt the journal entries, are termed poſting lines, and the figure on top of the line denotes the folio of the ledger where the debtor is entered; and the figure under the line ſhews the folio of the ledger where the credit is entered; and the other figures againſt the ſundry debtors, or ſundry creditors (whether goods or perſons) ſhew alſo in what folio of the ledger they are poſted.

The accounts of perſons and things are kept in the ledger, on oppoſite pages; and thoſe which in the journal are ſaid to be debtors, are entered on the left hand page, with the word *To*; and thoſe, to which they are ſaid to be debtors, are entered on the right-hand page, with the word *By*.

The LEDGER.

To your Ledger you ought to have an Index or Alphabet thus,

	Folio		*Folio*
B		M	
Brandy — —	2	Muſlin — —	m 4
C		N	
Caſh — — —	1	Noble Simon —	m 3
E		P	
Eaſy Samuel — —	3	Profit and loſs	m 1
Ellis Edward —	3	Port wines —	m 3
Executor of couſin Kind	3	S	
H		Stock —	m 1
Harret Edward — —	2	Sherry —	m 2
Houſhold expences —	4	Ship James — —	2
J		Smith Andrew — —	2
Jones Benjamin — —	2	Smart John — —	3
Johnſon Simon ——	3	Sugar — — —	3
K		T	
King Sir Peter —	3	Tobacco — —	2
L		V	
Long James — —	3	Voyage to Barbadoes	3

1. London, Anno Domini, 1765.

		Stock —— —— Dr.	Fo	£.	s.	d.
July	1	To John Smart on demand ——	3	40		
		To Samuel Easy due 15 Decemb. next —— ——	3	10		
		To Simon Noble ——	3	30		
		To Sir Peter King — —	3	200		
		To balance the neat of my estate	5	11855	15	
				12135	15	
		Cash —— Dr.				
July	1	To stock for trading occasions	1	10000		
	5	To Andrew Smith received of him in full ——	2	30		
	9	To tobacco for 3 hhds at 11 l. 5s	2	33	15	
	11	To sherry in part for 12 pipes at 30 l. —— ——	2	70		
	13	To ship James for my $\frac{1}{8}$ part of 688 l. freight ——	2	86		
				10219	15	
		Profit and loss —— Dr.				
July	19	To household expences ——	4	20		
		To stock gained by trade —	1	630	5	
				650	5	

London,

London, Anno Domini, 1765. 1.

		Per Contra —— Cr	Fo	£.	s.	d.
July	1	By cash for trading occasions —	1	10000		
		By sherry at 21 pipes at 25 l. 10s.	2	535	10	
		By tobacco for 30 hhds at 10 l.	2	300		
		By brandy for 20 casks at 15 l.	2	300		
		By ship James for $\frac{1}{8}$ part —	2	200		
		By Andrew Smith per note —	2	30		
		By Benjamin Jones due Oct. 4.	2	40		
		By Edward Harret per bond at 6 l. per cent. —	2	100		
		By profit and loss gained —	1	630	5	
				12135	15	
		Per Contra —— Cr.				
July	7	By John Smart paid in part	3	20		
	8	By port wine for 1 pipe ——	3	27		
	11	By sugar in part for 3 hhds at 19 l. 14s. as per Journal		29	11	
	12	By Simon Johnson, lent him, upon bond ——	3	200		
	15	By charges for a voyage to Barbadoes as per journal		7	4	
	16	By ditto for a premium ——	3	10		
	19	By household expences ——	4	20		
		By balance remaining ——	5	9906		
				10219	15	
		Per Contra —— Cr.				
July	14	By A. B. executor of cousin Kind	3	500		
		By sherry gained ——	2	60	10	
		By tobacco gained ——	2	3	15	
		By ship James ——	2	86		
				650	5	

2. London, Anno Domini 1765.

			Fo	l.	s.
		Sherry ——— Dr.			
July	1	To Stock at 25 l. 10s. for 21 pipes ———	1	535	10
		To profit and loss gained ——	1	60	10
				596	
		21			
		Tobacco ——— Dr.			
July	1	To stock at 10 l. for 30 hhds.	1	300	
		To profit and loss gained ——	1	3	15
				303	15
		30			
		Brandy ——— Dr.			
July	1	To stock at 15 l. for 20 casks	1	300	
		Ship James ——— Dr.			
July	1	To stock for ⅗ part ———	1	200	
		To profit and loss gained ——	1	80	
				280	
		Andrew Smith ——— Dr.	1	30	
July	1	To stock as per note ———			
		Benjamin Jones ——— Dr.			
July	1	To stock per note due Oct. 4. —	1	40	
		Edward Harret ——— Dr.			
July	1	To stock per bond at 6 l. per C.	1	100	

London, Anno Domini 1765.

			Fo	l.	s.	d.
		Per Contra —— —— Cr.				
July	11	By ſundries as per journal at 30l. for 12 pipes —— ——		360		
	18	By muſlin received in barter, 2 bales for 1 pipe	4	32		
		By balance remaining at 25l. 10s. for 8 pipes	5	204		
			21	596		
		Per contra —— Cr.				
July	9	By Caſh at 11l. 5s. for 3 hhds.	1	33	15	
		By balance remaining at 10l. for 27 hhds.	5	270		
			30	303	15	
		Per Contra —— Cr.				
		By balance remaining at 15l. for 20 caſks	5	300		
		Per Contra —— —— Cr.				
July	13	By caſh for my $\frac{1}{8}$ part of 688l. freight —— ——	1	86		
		By balance for my $\frac{1}{8}$ remaining	5	200		
				286		
		Per Contra —— Cr.				
July	5	By caſh in full of his debt	1	30		
		Per Contra —— Cr.				
		By balance due to me ——	5	40		
		Per Contra —— Cr.				
		By balance due to me ——	5	100		

3. London, Anno Domini, 1765.

			Fo	l.	s.	d.
		John Smart ——— Dr.				
		To cash in part of his debt —	1	20		
		To balance due to him ——	5	20		
				40		
		Samuel Easy ——— Dr.				
		To balance due to him ——	5	10		
		Simon Noble ——— Dr.				
		To balance due to him ——	5	30		
		Sir Peter King —— Dr.				
July	1	To balance due to him ——	5	200		
		Port wine ——— Dr.				
July	18	To cash for 1 pipe	1	27		
		Sugar ——— Dr.				
July	11	To sundries as per journal at 19l. 14s. for 3 hhds.		59	2	
		James Long ——— Dr.				
July	11	To balance due to him ——	5	29	11	
		Edward Ellis ——— Dr.				
July	11	To sherry at one month ——	2	290		
		Simon Johnson ——— Dr.				
July	12	To cash lent upon bond —	1	200		
		A. B. extr. of cousin Kind Dr.				
	14	To profit and loss for a legacy	1	500		
		Voyage to Barbadoes — Dr.				
	15	To sundry accounts as per journal ——	1	186		
	16	To cash paid a premium ——		10		
				1961	3	

London, Anno Domini, 1765. 3

			Cr.	Fo	l.	s.	d.
		Per Contra					
July	1	By ſtock on demand		1	40		
		Per Contra	Cr.				
July	1	By ſtock due 15 Dec. next.		1	10		
		Per Contra	Cr.				
July	1	By ſtock		1	30		
		Per Contra	Cr.				
July	1	By ſtock		1	200		
		Per Contra	Cr.				
		By balance remaining 1 pipe		5	27		
		Per Contra	Cr.				
		By balance remaining for 3 hds		5	59	2	
		Per Contra	Cr.				
		By ſugar on demand		3	29	11	
		Per Contra	Cr.				
		By balance due to me		5	290		
		Per Contra	Cr.				
		By balance due to me		5	200		
		Per Contra	Cr.				
		By balance due to me		5	500		
		Per Contra	Cr.				
		By balance remaining		5	186		
		By ditto			10		
					196	13	

London,

4. London, Anno Domini 1765

		Muſlin —— Dr.	Fo	l.	s.	d.
July	18	To ſherry in barter at 16l. for 2 bales	2	32		
		Houſhold expences —— Dr.				
July	19	To caſh paid one quarter's rent	1	20		

It is uſual to balance an account on a void leaf by itſelf, but to ſave as much room as I can, I ſhall here cloſe the account, and call it page, or folio five.

5 London, Anno Domini 1765.

	Balance —— Dr.	Fo	l.	s.	d.
	To caſh remaining in hand	1	9906		
	To ſherry remaining 8 pipes at 25l. 10s. ——	2	204		
	To tobacco for 27 hhds, at 10l.	2	270		
	To brandy for 20 caſks at 15l.	2	300		
	To ſhip James for my $\frac{1}{8}$ part	2	200		
	To Benjamin Jones due to me	2	40		
	To Edward Harret due to me	2	100		
	To port wine remaining 1 pipe	3	27		
	To ſugar 3 hhds. remaining	3	59	2	
	To Edward Ellis due to me	3	290		
	To Simon Johnſon due to me	3	200		
	To executor of couſin Kind, due at one year ——	3	500		
	Voyage to Barbadoes ——	3	196		
	To muſlin remaining 2 bales at 16s, ——	4	32		
			12324	2	

London,

London, Anno Domini, 1765. 4.

Per Contra —— Cr.	Fo	l.	s.	d.
By balance remaining at 16l. for 2 bales	5	32		
Per Contra —— Cr.	1			
By profit and loss		20		

It is usual to balance an account on a void le[illegible]y itself, but to save as much room as I can, I shall h[illegible] close the account, and call it page or folio five.

London, Anno Domini 1765. 5

Per Contra —— Cr.	Fo	l.	s.	d.
By Samuel Smart, due to him	3	20		
By Samuel Lasy, due to him	3	10		
By Simon Noble, due to him	3	30		
By Sir Peter King, due to him	3	200		
By James Long, due to him	3	29	11	
By David Williams, due to him	3	178	16	
By Stock the neat of my estate	1	11855	15	
		12324	2	

How

How to balance at the Year's End, and thereby to know the State of your Affairs.

Having closed your particular accompts, except stock, profit and loss, take a clean sheet of paper ruled for that purpose; then on the left hand folio make (balance Dr.) and on the other side (Per Contra Cr.) then even your accompts of cash, and bear the nett rest to balance Dr. Then cast up all your goods bought, and those sold, and see whether all the goods bought are sold or not: if any remain unsold, value them as they cost, or according to the present market-price; and make balance Dr. to goods unsold. Again, see what your goods cost severally, and how much they were sold for, and bear the nett gain or loss to the accompt of profit and loss. Then all the nett rests of your particular accompts in order as they lie, bring them severally to balance.

In short, balance is made debtor to all accompts for the sum that such accompt is made creditor by balance; and balance is made creditor by all accompts for the sum that such accompt is made debtor to balance; and profit and loss is made debtor and creditor in like manner to and by the accompts closed with profit and loss. And having closed these accompts, and entered the same in the accompt of balance, as taught before, close the accompt of profit and loss, by making the same Dr. to stock, for so much as the creditor side exceeds the debtor, and the contrary; which contrary seldom happens, for few that are careful in their business and trade, gain nothing. Then carry the foot of the accompt of profit and loss (if gain) to the creditor side of stock, if loss, to the debtor side. Then close the accompt of stock, as before taught for other accompts, and make balance Dr. To, or Cr. By, the excess of the Dr. or Cr. side of stock, as taught above, and in the example foregoing of stock and balance; and last of all, sum up the Dr. and Cr: sides of balance, and if the sums are equal, your books have been rightly kept, otherwise not.

Note, That in the accompt of stock, the sum you owed when you began trade, and your present stock, will always balance your former stock, and what you have gained by trading, if your accompts have been well kept.

Maxims

Maxims and Rules to be obſerved in drawing and accepting Bills of Exchange, foreign and domeſtic.

1. BILLS are either foreign or domeſtic.

Foreign bills are uſually payable in London, and other parts of England, at ſingle, double or treble uſance.

2. Domeſtick bills are uſually payable, either at ſight, or ſome number of days after.

3. A foreign bill payable at uſance here in London, is payable a month and three days, (according to the cuſtom of London) after the date of the bill.

4. If a foreign bill is not paid when due, it muſt be proteſted in the office of a public notary, who proteſteth againſt the drawer, he on whom it is drawn, &c. for all charges, re charges, and intereſt to be paid by them.

5. After the bill is proteſted, the proteſt and bill is regiſtered, and then the proteſt is returned; but it is uſual, in kindneſs to him on whom it is drawn, to keep the bill three or four days longer.

6. If the bill is not yet paid, it is uſual to go upon the exchange to ſee if any body will pay the ſaid bill, for the honour of the drawer.

7. If any one is found that will pay it, he muſt likewiſe pay you the charges of the proteſt, and alſo the intereſt and other charges, which he afterwards charges on the drawer.

8. But if no one be found that will pay it, then the bill muſt be returned with the charges, intereſt, &c. to the drawer.

9. By an act, anno 9 and 10 Gulielmi III. Regis. It is enacted, that in ſuch cities, towns or places, where no notary public reſides, any ſubſtantial perſon of the city, town or place, in the preſence of two or more credible witneſſes, may act as ſuch; refuſal or neglect being firſt made of due payment of the ſame. And by an act Anno 3 and 4 Annæ Reginæ, It is enacted, that all notes payable to any perſon or order, ſhall be aſſignable over in the ſame manner as inland bills of exchange are, or may be; and that any perſon to whom ſuch note is indorſed, may maintain an action either againſt the perſon who ſigned ſuch note, or againſt any of the perſons that indorſed the ſame.

10. The

10. The allowance for payment over and above uſance is different, according to the country, As

		Days	
At	London	3	Is allowed after the ſingle, double, &c. uſance.
	Rotterdam	6	
	Roan	5	
	Paris	10	
	Hamburgh	12	
	Antwerp	14	

11. Though uſance generally ſignifieth a month in bills drawn to and from London, yet from Venice to London, ſingle uſance is three months.

12. When you have money to receive from a foreign correſpondent, you are to make your caſe known to an exchange broker, who will procure perſons that will pay you your money here; you giving them your bill for the like ſum, payable to their order by your correſpondent; and in this caſe you are to enquire how the exchange goes to ſuch a place where the money is payable, and make your bargain as to exchange as well as you can; which having done, draw your bill, mentioning the ſterling coin, at ſo much foreign coin for ſo much ſterling.

13. A domeſtick bill that is payable at ſight, is not payable till three days after the perſon on whom it is drawn ſeeth it.

14. If a bill is accepted, the acceptor is become debtor to him, to whom the bill is payable. And

15. If a bill is accepted, and not paid in time, he to whom it is payable, may, by the law of merchants, ſeize the goods of the acceptor.

16. When a bill or note for money is made payable to another or order, if the perſon to whom it is payable goes not in perſon to receive the money, he muſt write his order on the backſide of the bill or note, thus:

I order the bearer A. B. *to receive the contents of this bill or note.*

And afterwards ſubſcribe your name.

17. When any one draws a bill payable to another, the drawer ought at the ſame opportunity, to give advice to him by whom it is payable, that he has drawn a bill on him payabe to ſuch a perſon, at ſuch a time, for ſuch a ſum

ſum, for the avoiding all ſuſpicion of deceit in counterfeiting the drawer's hand, &c.

18. When part of the content of a note, &c. is only required to be paid, the ſum paid in part muſt be endorſed on the backſide of that part moſt wrote on, as croſs the middle, &c. that ſo the endorſement cannot be cut off without defacing the bill.

19. If you draw a bill on any one that is indebted to you, and it be not paid in that time, which you think it might reaſonably be, you muſt draw a ſecond bill on him, mentioning it in the bill to be your ſecond, third, &c. bill, payable to ſuch a perſon, &c.

The Form of an inland Bill.

Norwich, July the 14th, 1765.

AT four days ſight pay Mr. Henry Molyneux, or his order, Three hundred pounds, for the value received here of Ralph Rich, and place it to account, as per advice from

Your humble ſervant,

To Mr. Timothy Telfaſt, Merchant in London. Matthew Mount.

If this bill is not paid, draw a ſecond, thus.

Norwich, July the 14th, 1765.

AT four days ſight pay this my ſecond bill of exchange (my firſt not being paid) to Mr. H. M. &c.

A foreign Bill.

London, July the 14th, 1765, for 601 l. 4s. 3d. ſterling, 2 uſance at 33s. Flemiſh, for 20s. ſterling.

AT double uſance pay this my firſt bill of exchange unto John Vanderſtengen, or his order, ſix hundred and one pounds, four ſhillings, threepence ſterling, at thirty three ſhillings Flemiſh for one pound ſterling, for the value received here of James Langrique, and place it to account, as per advice from

Your friend and ſervant.

To Mr. Dan. Dendardorp Merchant in Antwerp. Timothy Truſtnone.

The Form of a Bill of Lading.

SHipped, by the grace of God, in good order and well conditioned, by Edward Export, of London, merchant, in and upon the good ſhip called the (Bilboa Merchant of London) whereof is maſter under GOD, for the preſent voyage, (Martin Mizzen of London, Mariner) and now riding at anchor in (the port of London) and by God's grace bound for (Cadiz) to ſay (1 bale of ſtocking baize, and 1 trunk containing five hundred pair of ſilk ſtockings, contents, &c. as per invoice) being marked and numbered as per margin, and are to be delivered in the like good order at the aforeſaid port of (Cadiz) the danger of the ſeas only excepted, unto (Mr. Thomas Drake, merchant, there) or to his aſſigns, he or they paying freight for the ſaid goods (three pieces of eight per cwt.) with primage and average accuſtomed. In witneſs whereof the maſter or purſer of the ſaid ſhip hath affirmed to (three) bills of lading, all of this tenor and date, one of which (three) bills being accompliſhed, the other [two] to ſtand void. And ſo God ſend the good ſhip to her deſired port in ſafety. *Amen.*

TB
N°
1, 2.

Dated in London the 6th of October, 1765. Inſides and contents unknown to Martin Mizzen.

Note, The ſeveral words included in the Parentheſes, are to be put into the ſeveral vacant places that are in a blank bill of lading.

Note alſo, Average is the general allowance made to the maſter of the ſhip, of 1d. or 2d. in every ſhilling freight; primage, a ſmall allowance to be diſtributed among the ſailors.

The Form of an Invoice.

Port Royal in Jamaica, July 24, Anno 1765.

INVOICE of five barrels of indico, five hhds. of sugar, and five hhds. of Pimento, shipped on board the John of London, Peter Green, commander, for account and risque of Messrs. James and Isaac Wood, of London, merchants, being marked and numbered as per margin; contents, costs and charges as in the following examples,

viz.	Indico 5 B			l.	s.	d.
I F	143 lb.					
N°	143					
121	146					
to	152					
125	172					
	756 lb. nett, at 2s. 2d. per lb. ——			81	18	0
	Sugar					
	5 hhds.	Tare				
N°	C. qr. lb.	C. qr. lb.	C qr. lb.			
126	11 3 27	1 2 19	Gross 68 0 0			
to	12 2 19	1 3 0	Tare 8 3 12			
130	13 2 13	1 2 16				
	14 1 15	1 3 11	Nett 59 0 16			
	15 1 10	1 3 22	at 24s. per C.	70	19	5
	68 0 0	8 3 12				
	Pimento		lb.			
N°	5 hhds. Tare		2026 gross			
131	lb. lb.		389 tare			
to	432 84					
135	396 72	Nett 1637 at 11d. ½ p. lb		78	0	9½
	410 81					
	376 70	Charges				
	412 82	To cost of five barrels				
		10 hhds — 4 7 9				
	2026 389	To storeage — 1 0 0		5	7	9
				236	5	11½
		To commission at 5 per Cent.		11	16	3½
		Errors excepted per A. B.		—	—	—

An Account of Sales.

Port Royal in Jamaica, July 24, 1765.

ACcount of Sale of 2765 ells of brown ozenbrigs, 1112 yards of blue hartford, 2 pieces of grey cloth, qt. 39 yards, 50 pair of fine worsted hose, and 175 ells of bag holland, received from on board the ship Jane, Capt. Samuel Mount, commander, for account of Triſtam Ewſters, of London, merchant, is Dr.

				l.	s.	d.
To portage of ditto ——	0	17	6			
To commiſſion of ſales	13	1	11			
To ſtoreage at ½ per Cent.	6	10	11½			
				20	10	4½
To the nett product carried to the credit of your accounts bad debts excepted ——				241	6	4½
				261	16	9

Per Contra Cr.

	l.	s.	d.
By 1765 brown ozenbrigs making 3456 yards ¼ at 8 d. ½ per yard ſold John Brown ——	122	8	2
By 1112 yards of blue linen, ſold at 7d. ¾ per yard —— ——	35	18	2
By James Snell, for 39 yards of cloth, at 15s. per yard ——	29	5	0
By Laurence Mead, for 50 pair of hoſe at 7s. 10d. per pair ——	19	11	8
By ditto for 175 ells of bag holland, at 6s. 3d. per ell ——	54	13	9
	261	16	9

Errors excepted, July. 24th, 1765.
per Charles Carey.

Buſineſs

Buſineſs at the Water Side, concerning Exporting and Importing of Goods, &c. Entering them at the Cuſtom Houſe, &c.

WHEN there are goods to export, and ready packed, &c. there muſt firſt be made a bill of entry (as it is called) of the contents, after this form, *viz.*

In the Royal George, William Crowder, for Antigua,
Charles Sendway,

Three caſes of haberdaſhery,
Five tuns of beer, &c.

Of theſe bills there muſt be ſeven, one of which muſt be in words at length, and the other may be expreſſed in figures: Theſe are, by the clerks of the cuſtom houſe, entered into ſeveral books for that purpoſe.—If ſome goods pay cuſtom, and others not, then there muſt be made two entries; one for thoſe that pay cuſtom, and another for thoſe that pay not; and likewiſe you muſt have two cockets.

A cocket teſtifies the payment of all duties; and is writ on a ſmall piece of parchment, in the following words:

Know ye, that Charles Sendway, merchant, for three caſes of haberdaſhery, and five tuns of beer, in the Royal George, William Crowder for Antigua, hath paid all duties. Dated 9th of November, 1765.

On the backſide of the cocket you muſt ſet down the marks, numbers, and quantity of the goods expreſſed in the inſide.—When on clean paper you tranſcribe your bill of entry; upon which a ſhipping bill will be made out; on the back of which, ſignify the marks, numbers and contents, as before on the cocket; both of which being thus endorſed, you are to deliver them to the ſearcher at the water ſide, who depoſits them in the office till the going away of the ſhip, and then they are delivered to the captain or maſter of the ſhip.

If you have not judgment or experience enough to enter your goods yourſelf, it is but applying yourſelf to any one of the clerks in the long-room, who make it their buſineſs (and good buſineſs too) to enter people's goods; and for a ſhilling (you giving them the contents) they will write

you bills, and paſs your entries, without giving you any further trouble, or your running any riſk of making any falſe entries, &c.

Entry Inwards.

THE ſhip being arrived, ſearch the entry-book in the long-room, and you will find the name of the ſhip and captain; as alſo the waiters that are to attend the delivery of the ſhip, and at what key the goods will be landed. The entry inward runs thus:

In the Mercury, John Keelhaul from Antigua.
25 hhds of ſugar, &c.
56 bags of cotton, &c.

There muſt be eight of theſe bills [though but ſeven outwards] and one of theſe muſt be in words at length, [as well as one of the ſeven bills outwards] which is for the warrant of delivery; and muſt be ſigned by the perſon in whoſe name the goods are entered; and the mark alſo in the margin; which being done, and the fee for entry and cuſtom paid, you will then have, from the land-waiters, a warrant for the landing and receiving your goods.

When goods are to be exported by certificate, viz. Foreign goods formerly imported; theſe goods being to be ſent abroad, or exported to another place or country by a native of England within twelve, or a ſtranger within nine months after importation, entitles the exporter to a drawback of part of the cuſtom paid at the importation of the ſaid goods, [producing a certificate from the comptroller, that they have paid the duties inwards] and the debenture of cuſtom drawback runs thus:

Debenture.

CHriſtopher Commerce, natural born, did on, &c. make an entry with us of two thouſand ells of broad Germany linen, in the Adventure, Capt. Henry Smith, for Barbadoes, the Subſidy, &c. was paid inwards by, &c. as appears per certificate of the collector inwards: And for farther manifeſtation of his juſt dealing therein, he has alſo taken oath before us of the ſame.

Cuſtom-houſe, London, 9th November, 1765.

The

The Oath.

Jurat C. C. That two thouſand ells of broad Germany linen, above-mentioned, was really ſhipped out, and hath not been relanded in any port or creek in England or Wales ſince laſt ſhipped, Nov. 9, 1765.

The Certificate Cocket.

London, Know ye that C. C. for two thouſand ells of broad Germany linen, paid per, &c. the day, &c. laſt, late unladen, and now in the Adventure, Captain Henry Smith for Barbadoes. Dated the 9th of November 1765.

This certificate cocket is gained by applying to the books of the importer, to know the day, &c. when the cuſtom inwards was paid, and by whom, which carry to the long-room in the cuſtom houſe, and deliver it to the comptroller's clerk of the ſubſidy inward and outward, with an account of what you would export, &c.

A little before was mentioned at what key the goods ſhould be landed, and therefore here it is proper to name the keys (or rather quays) and wharfs that goods are uſually landed at; which are theſe, viz.

Somer's key, Smart's key, Wiggin's key, Bear-key, Dice-key, Cuſtomhouſe-key, Potter's-key, Wool-key, Galley-key, Brewer's-key, Ralph's key, Cheſter's key, Lyon's-key, Cox's-key; Hammond's, Young's and Gaunt's keys. And the wharfs are Freſh-wharf and Botolph-wharf.

Beſides theſe, there are certain places called Docks, which are harbours cut into the land, where there is no current, but only a flow, and an ebb, occaſioned by the riſe and fall of the tide in the river Thames; and theſe are convenient for the lying of veſſels, hoys, lighters, barges and boats; and are theſe, viz.

Billingſgate-dock, Sabb's-dock, Tower-dock, St. Catherine's dock, Wappin-dock, Hermitage-dock, Execution-dock and Limehouſe-dock. And above bridge Queenhith-dock, Puddle-dock, White-Frier's-dock, and Scotland-Yard dock. And on Southwark or Surry ſide, are Saviour's-dock, Clink-dock, and Savery's-dock below the Bridge-yard, and ſeveral other for private uſes.——But more

more particularly eminent on that ſide the water, is the Bridge-yard for landing ſundry ſorts of merchandizes, but chiefly from the ports of England.

Of Wharfage and Lighterage.

WHarfingers have ſeveral managers over them, and alſo a committee to redreſs grievances, &c. and clerks of the ſtations, with lighter managers, and have the letting of many warehouſes (which now are very fine and commodious, being re-built ſince the ſad fire in Thames ſtreet) cellars, &c. and have the privilege of keeping lighters for the carriage of goods to and from ſhips.

The Rates of Wharfage,

Are generally computed at 12d. per ton, whether outward or inward; excepting ſugars from the Weſt-Indies, which pay 2s. per ton, 4 hogſheads being accounted a ton (though they weigh more.) Crainage is included in the 12d. per ton wharfage; and for lighterage, the wharfingers have 12d. for 4 hhds. of ſugar that come from the Weſt-Indies; and for wine and other goods, the lighterage is half as much as the wharfage.

Husbands of Ships.

WHERE ſeveral Perſons are concerned in a ſhip, there is uſually a husband choſen by them to take an account of every merchant's goods, &c. and pay the wharfage, literage, porterage, &c. and theſe husbands are to collect every merchant's proportion, when they do the owner's freight.

The Rates of Watermen, as ſet forth by the Lord-Mayor, and Court of Aldermen.

	Oars, s.	d.	Scul. s.	d.
FROM London to Limehouſe, New-Crane, Shadwell-Dock, Bell-Wharf, Ratcliff Croſs —— ——	1	0	0	6
From London to Wapping Dock, Wapping New and Wapping Old-ſtairs, the Hermitage, Rotherhith Church-ſtairs,				

and

	Oars	Scul.
and Rotherhith ſtairs	0 6	0 3
From St Olave's to Rotherhith Church ſtairs, and Rotherhith ſtairs	0 6	0 3
From Billingſgate and St. Olave's, to St. Saviour's-mill	0 6	0 3
All the ſtairs between London bridge and Weſtminſter	0 6	0 3
From either ſide above London bridge to Vauxhall	1 0	0 6
From Whitehall to Lambeth or Vauxhall	0 6	0 3
From Temple, Dorſet, Blackfriars-ſtairs and Paul's-wharf, to Lambeth	0 8	0 4
Over the water directly in the next boat between London Bridge and Limehouſe, or London Bridge and Vauxhall	0 4	0 2

OARS.

From London to

	Whole Fare.	Company.
	s. d.	s. d.
Graveſend	4 6	0 9
Graſe or Greenhive	4 0	0 8
Burfleet or Erith	3 0	0 6
Woolwich	2 6	0 4
Blackwall	2 0	0 4
Greenwich or Debtford	1 6	0 3
Chelſea, Batterſea, Wandſworth	1 6	0 3
Putney, Fulham, Barn-elms	2 0	0 4
Hammerſmith, Chiſwick, Mortlake	2 6	0 6
Brentford, Iſleworth, Richmond	3 0	0 6
Twickenham	4 0	0 6
Kingſton	5 0	0 9
Hampton Court	6 0	1 0
Hampton Town, Sunbury and Walton	7 0	1 0
Weybridge and Chertſey	10 0	1 0
Staines	12 0	1 0
Windſor	14 0	2 0

Rates for carrying Goods or Paſſengers in the Tilt-Boats between London and Graveſend.

	s.	d.
A half firkin	0	1
A whole firkin	0	2
A hogſhead	2	0
An cwt. of cheeſe, iron, or any heavy goods	0	4
A ſack of ſalt or corn	0	6
An ordinary cheſt or trunk	0	6
An ordinary hamper	0	6
The hire of the whole tilt-boat	22	6
Every ſingle perſon in the ordinary paſſage	0	6

If a waterman takes or demands more than theſe rates, he is liable to pay forty ſhillings, and ſuffer half a year's impriſonment.

And if he refuſes to carry any paſſenger or goods at theſe rates, upon complaint made to the Lord-Mayor and Court of Aldermen, he ſhall be ſuſpended from his employ for 12 months.

IT is uſual, when goods are ſold, for the ſeller to deliver to the buyer, with the goods, a bill of parcels, which is a note of their contents and prices, with a total of their value caſt up, &c.——Theſe bills ought to be handſomely writ, and in a methodical order, according to the beſt and cuſtomary way of each particular Trade. I ſhall therefore ſhew the forms of bills of parcels in ſome trades and profeſſions.

BILLS *of* PARCELS.

Linen-Drapers.

Mr. Joſias Diaper,

Bought of Jaſper Napkin 20th of July 1765.

		s.	d.		l.	s.	d.
36 Yards of Muſlin	at	7	6	℔ yd.	13	10	0
18 Yds. of Cambric	at	10	3	—	9	4	6
27 Ells of Diaper	at	1	8	℔ Ell	2	5	0
32 Ells of Holland	at	3	6	—	5	12	0
3 Doz. of Napkins	at	3	0	each	5	8	0
19 Yds. of Damaſk	at	5	4	℔ yd.	5	1	4
					41	0	10

If the Bill ſhould be paid when delivered, the Receipt is thus.

Receiv'd the Contents of the above Bill, in full of all Demands,

℔ Jaſper Napkin.

Mercers.

Mr. Oliver Satten,

Bought of Ralph Brocade, May 12th, 1765.

		s.	d.		l.	s.	d.
18 Yards of Satten	at	10	6 ℔ yd.	—	9	9	0
12 Yds. of Silk —	at	15	4 — —	—	9	4	0
25 Yds. of Brocade	at	12	3 — —	—	15	6	3
24 Yds. of Luſtring	at	7	6 — —	—	9	0	0
15 Yds. of Sarſenet	at	4	8 — —	—	3	10	0
19 Yds. of Velvet	at	17	6 — —	—	12	16	6

Woollen-Drapers.

Mr. Thomas Serge,

Bought of John Drab, July 4th, 1765,

		s.	d.		l.	s.	d.
18 Yards of Broad Cloth	at	15	6 ℔ Yd.		13	19	0
28 Yds. of Serge —	at	4	0	——	5	12	0
32 Yds. of Scarlet —	at	19	6	——	31	4	0
28 Yds. of Drab —	at	12	3	——	17	3	0
36 Yds. of Shalloon —	at	1	4	——	2	8	0
27 Yds. of Drugget —	at	10	0	——	13	10	0

Hoſiers.

Mr. Arthur Worſted,

Bought of Evan Hoſe, May 5th, 1765.

					l.	s.	d.
24 Pair of Silk Stockings,	at	10	: 6	℔ Pair	12	: 12	: 0
18 Pair of Thread ditto	at	3	: 9	—	3	: 7	: 6
15 Pair of Worſted ditto	at	4	: 3	—	3	: 3	: 9
16 Pair of Cotton ditto —	at	5	: 6	—	4	: 8	: 0
25 Pair of mill'd Hoſe —	at	4	: 8	—	5	: 16	: 8
18 Pair of black ditto —	at	2	: 6	—	2	: 5	: 0

Milleners.

Mrs. Finelace,

Bought of Amy Tippet, June 3d, 1765.

		s.	d.		l.	s.	d.
38 Yards of fine Lace,	at	15	: 0	℔ Yard	28	: 10	: 0
19 Yds. of ſilver Ribon,	at	2	: 6	—	2	: 7	: 6
24 Pr. of fine kid Gloves,	at	2	: 3	℔ Pair	2	: 14	: 0
26 Fans, India Mount,	at	4	: 6	each —	5	: 17	: 0
24 Sets of Knots —	at	2	: 0	℔ Set —	2	: 8	: 0
8 Sarcenet Hoods —	at	4	. 8	each —	4	: 4	: 0

Grocers

Mr. Titus Pepper,

Bought of Francis Rice, Nov. 3d, 1765.

		s.	d.		l.	s.	d.
25 lb. of Currants —	at	0	: 6 ½	℔ lb.	0	: 13	: 6½
24 lb. of Rice — —	at	0	: 3	— —	0	: 6	: 0
12 lb. of black Pepper,	at	1	: 8	—	1	: 0	: 0
3 Sugar Loaves, wt. 23 lb.	at	0	: 9 ½	—	0	: 18	: 2
36 lb. of Malaga Raiſins,	at	0	: 4	—	0	: 12	: 0
28 lb. of Sun ditto —	at	0	: 5	— —	0	: 11	: 8

Of

Fiſhmongers.

Mr. Pike,

Bought of Stephen Herring, January the 3d, 1765.

	l.	s.	d.		l.	s.	d.
1 C. ½ of ſtock fiſh, at —	4	10	6	per C.	6	15	9
3 cwt. of haberdine, —	7	10	6	——	22	11	6
1 ½ cwt. of ling, — —	8	12	6	——	12	18	9
2 barrels of red Herrings,	2	12	6	℔ bar.	5	5	0
6 barrels of white ditto,	3	10	2	——	21	1	0

Note. Of haberdine or ling, 124 is a hundred; of ſtock-fiſh and herrings, 120 to the hundred, 1200 to a thouſand, and 12 Barrels to a laſt.

Leatherſellers.

Mr. Buckſkin,

Bought of George Hide, Octob. 17, 1765.

	l.	s.	d.	
15 large oiled lamb skins, at	0	1	3	℔ skin
13 kipp of goat skins, ——	0	3	4	
137 allumed ſheep skins, —	0	1	3	
19 calve skins, ———	0	4	3	
60 diker of hides, ———	15	11	6	

Note, 50 goat skins make a kipp, and other ſkins are five ſcore to the hundred. A dicker is 10 hides or ſkins, and 20 dickers a laſt.

Shoemakers.

Mr. Tightfoot,

Bought of Moſes Fitwell, July 18th, 1765.

Doz.	l.	s.		l.	s.	d.
15 Of Mens pumps, at —	4	4	℔ Doz.	63	0	0
8 Of double Channel —	4	15	——	38	0	0
6 Of turn'd Pumps ——	3	10	——	21	0	0
3 Of Womens ſilk ſhoes,	6	5	——	18	15	0

BIILS on BOOK DEBTS.

A Woollen-draper's Bill.

Mr. Francis Freeze, Dr.

1765.——————To John Drab.

		s.	d.	
Octob. 4.	To 16 yds. ½ of black cloth at	18	: 3	℔ yd.
——	To 4 yds. ⅛ of drap-de-berry at	15	: 6	
Nov. 10.	To 35 yds. of mixt grey cloth	10	: 5	
——	To 9 yds. of fine ditto, at —	17	: 3	
Dec. 12.	To 12 yds. ¾ of fine broad cloath, —— ——	17	: 3	

If the gentleman pays the whole bill, then make the receipt thus:

Received the 14th of January, 1766, of Mr. Francis Frieze the sum of fifty-four pounds, &c. in full for my master John Drab.

£. 54, &c. per Matthew Measure.

A Mercer's Bill.

Mrs. Hannah Indolent, Dr.

1765.——————To Henry Brisk.

		yds.	s.	d.	
Octob. 4.	To 16 ½ of flowered sattin, at		14	9	℔ yd.
——	To 14 of Venetian silk, at		11	8	
Nov. 10.	To 14 of flowered damask,		9	7	
——	To ¾ of lutestring, at ——		4	7	
Dec. 12.	To 5 ⅞ of Genoa velvet, at		18	10	

If part of the bill is paid, write thus:

Received of Mrs. Indolent, twelve pounds ten shillings, in part of payment, for my master Henry Brisk;

£. 12 : 10 per Benjamin Follow.

The

The several articles of these bills are purposely omitted being cast up, for the exercise of the reader in the rules of practice; or in those of multiplication of money, before shewn; which indeed is the best method of all, for the ready casting up the articles contained in any bill of parcels whatsoever.

Example.

We'll take the last article of the mercer's bill, viz. 5 yds. $\frac{7}{8}$, &c. at 18s. 10d. per yard.

	18—10				18—10		
		5	$\frac{7}{8}$			7	
l.	4	14	2	8)	131	10	
		16	5	$\frac{1}{4}$		16	5 $\frac{1}{4}$
Facit l.	5	10	7	$\frac{1}{4}$			

In this example the price is multiplied by the quantity, viz. 5 yards $\frac{7}{8}$, according to the rules delivered in multiplication; and the product by 5 is 4l. 14s. 2d. Then for the $\frac{7}{8}$ of a yard: I multiply the price of the integer, viz. 18s. 10d. by the numerator of the fraction, viz. 7, and divide by the denominator 8, and the quotient is 16s. 5d. $\frac{3}{4}$, which 16s. 5d. $\frac{3}{4}$, added to the product of 18s. 10d. multiplied by 5, gives 5l. 10s. 7d. $\frac{1}{4}$, as in the operation above.

A Tayler's Bill.

Mr. Richard Staytape Dr.

1765——————To Simon Buckram,

		l.	s.	d.
Aug. 6.	To 2 $\frac{1}{2}$ Yds. of Broad-Cloth, at 10s 6d. per Yd. — —	1	6	3
——	To 5 Yards of Shalloon, at 2s. 3d.	0	11	3
——	To Buckram, Staytape and Canvas —	0	3	4
——	To Silk, Twist and Mohair — —	0	2	6
——	To Buttons — — — —	0	2	6
——	To making your Coat and Breeches	0	10	6

A Stationer's Bill.

Mr, Samuel Foolſcap Dr.

1765——————To Timothy Paperſkull.

	l.	s.	d.
June 4. To 8 Ream of Demy Paper, at 12s. ℔ Ream —— ——	4	16	0
July 6. To 3 Ream of Foolſcap ſuperfine —	2	5	0
Ditto 14. To 8 hundred of Quills — —	0	8	0
Aug. 6. To 9 Spelling Books — —	0	6	9
Ditto 16. To 4 Books of Arithmetic ——	0	15	0
—— To 6 rolls of parchment, at 16s. 9d. ℔ roll.	5	0	6

Note, A roll of parchment is 60 ſkins; A ream of paper 20 quires; and a bale of paper 10 reams.

A Carpenter's Bill.

Mr. John Slitdeal Dr.

1765——————To Freeman Wainſcot.

	s.	d.	l.	s.	d.
May 6. To 18 whole Deals, at 1 : 9 each			1	11	6
—— To 16 ſlit Deals, at 1 : 0 each			0	16	0
June 5. To 32 Feet of 3 by 4 at 0 : 2 ℔ ft.			0	5	4
—— To 18 Feet of 6 by 8 at 0 : 8 —			0	12	0
——To Nails 20d. 10d. 6d. and 4 penny Nails, two hundred of each —			0	6	8
Ditto 9. To 34 Days Work, at 2 : 4 ℔ day			3	19	4

A Brick-

A Bricklayer's Bill.

Mr. Nathan Ridgetile Dr.

1765——————————To Tobias Morter.

		l.	s.	d.
July 23.	To 9 Thouſand of Bricks, at 15s. 6d. ℔ Thouſand	— 6	: 19	: 6
——	To 15 Ditto of Tiles, at 19s. 6d.	— 14	: 12	: 6
——	To 36 Ridge Tiles, at 1d. ½ each	0	: 4	: 6
—	To 12 hundred of Lime, at 16s. ℔ C.	9	: 12	: 0
——	To 9 Load of Sand, at 3s. 6d. ℔ load	1	: 11	: 6
Sept. 28.	To 67 Days a Bricklayer, at 2s. 4d. per Day —	7	: 16	: 4
——	To 67 Days a Labourer, at 1s. 6d.	5	: 0	: 6

Note, 1000 plain tiles is 1 load; and 25 bags or buſhels of lime 1 cwt. A brick muſt be 9 inces long, and 4 inches broad. Bricks are of three ſorts, plaice bricks, red bricks, and grey ſtock bricks.

Here it will be convenient to give a general rule for the caſting up any thing ſold by the thouſand; as bricks, tiles, clinkers, &c.

The eaſy Rule is this.

Multiply the given number by the ſhillings in the price, (if the price be at ſo many ſhillings per 1000) and always cut off three figures or places towards the right hand; and the figures towards the left hand are ſhillings, which divide by 20, to bring them into pounds; and thoſe figures ſeparated towards the right hand, multiply by 12, the next inferior denomination; and ſtill cut off or ſeparate three places towards the right hand, and the figures towards the left are pence; and the three laſt figures cut off, multiply by 4; and ſtill ſeparate three places towards the right hand, and the figures towards the left are farthings.——And if the price be ſhillings and pence, or ſhillings, pence and farthings per thouſand, then multiply by the ſhillings as before, and take parts for the pence and farthings, as in the rule of practice; add theſe together and proceed as above directed.

Example.

1840
15
9200
1840
27|600
12
7|200
4
800

Anſwer, 27s. 7d. or 1 l. 7. 7d.

Example.

7870 plain tiles at 14s. 6d. per thouſand.
14
31480
7870
6d. is ½ 3935
114|105
12
1|380
4
|520

When things are ſold by the hundred, as Dutch and Engliſh pantiles, then follow this rule, viz.

Multiply the given quantity by the ſhillings in the price, and take parts for the pence and farthings (if any) as before, then from the right hand of the ſum cut off two places, and proceed as in the laſt rule.

Of

Of MENSURATION.

THE ſeveral kinds of meaſuring are three, *viz.*

1*ſt*, Lineal, by ſome called running meaſure, and is taken by a line, and reſpects length without breadth; the parts of which are,

12 inches 1 foot, 3 feet 1 yard, 16 feet and an half 1 rod, pole, or perch.

All kinds of ornamental work, ſuch as cornice, freeze, &c. are meaſured by running meaſure.

2*dly*, Superficial, or ſquare meaſure, is that which reſpects length and breadth, and the parts are,

144 inches 1 foot, 72 inches half a foot, 36 inches one quarter of a foot, 18 inches half a quarter of a foot, 272 feet and a quarter 1 rod, 136 feet half a rod; 1296 inches, or 9 feet, one ſuperficial or ſquare yard.

3*dly*, Solid, or cube meaſure, which reſpects length, breadth and depth, or thickneſs; and the parts are,

1728 inches 1 foot, 1296 inches three quarters of a foot 864 inches half a foot, 432 inches 1 quarter of a feet, and 27 feet 1 ſolid yard.

Superficial Meaſure.

TO meaſure things that have length and breadth, ſuch as board, glaſs, pavement, wainſcot, and land, is to take the dimenſions of the length and breadth, according to the cuſtomary method uſed in each particular; for inſtance, board and glaſs are meaſured by the foot, the dimenſions are taken in feet and inches, and the content given in feet.

Of Flooring, Roofing, &c.

Queſt. How many clinkers 7 inches long, and 3 inches wide, will floor a yard 27 feet long, and 19 feet wide? Anſ. 3517 $\frac{15}{21}$.

Multiply the length of the yard by the breadth, gives 513 feet; this multiply by 144, the ſquare inches in a ſquare foot, gives 73872 inches; this divide by 21, the inches in clinker, gives 3517 $\frac{15}{21}$.

Queſt. How many planks will floor a hall 60 feet $\frac{1}{2}$ long, and 33 feet and $\frac{1}{2}$ wide; when the planks are 15 feet long, and 15 inches wide? Anſ. 108.

Multiply

Multiply 60.5 × 33.5 = 2026.75. Then 15 feet × 1.25 feet (*viz.*) 15 inches, gives 18.75 feet for 1 plank: now 2026.75 ÷ 18.75, gives 108 planks.

Queſt. A thatcher thatches a barn 60 feet long, and 25 feet wide, and the two porches are each 15 feet long, and 10 feet deep, I demand how many ſquares are contained in it? *Anſwer*, 33 ſquares. *N. B.* 100 feet is 1 ſquare.

Multiply 60 by 25, gives 1500 feet for 1 ſide, which doubled, gives 3000 for both the ſides; then the porch, *viz.* 15 × 10, gives 150 for 1 ſide, which doubled, gives 300, which added to 3000 is 3300, which divided by 100 (that is, cutting off 2 figures) gives 33 ſquares.

Of Paving, Painting, Wainſcoting, &c.

Paving, painting, and wainſcotting is meaſured by the ſquare yard; 9 ſquare feet being 1 yard.

Queſt. A gentleman has a walk 32 yards long, and 12 feet wide, which is paved with ſtone; how many yards does it contain? Anſ. 128 yards.

Firſt, multiply 32 yards, *viz.* 96 feet by 12, gives 1152, which divide by 9, gives 128 yards.

Queſt. There is a room 64 feet round, and 9 feet high, in which are two windows, each 6 feet high, and 3 feet wide, and the fire place contains 9 ſquare feet; I demand how many yards of paper, half yard wide, will hang it? Anſ. 118 yards.

Firſt, 64 × 9 = 576 yards, the content, out of which take 18 feet, each window, *viz.* 36 feet, and 9 the fire-place, is 45; and the remainder is 531 feet; which divide by 9, gives 59 yards, the content of the room; but as the paper is ½ yard wide only, it will take double this Number, *viz.* 118 yards, anſwer.

Painting, wainſcoting, &c. are done by the yard ſquare, and meaſured after this manner.

Proper directions for Joyners, Painters, Glaziers, &c.

Rooms being various in their forms, take this general rule in all caſes, *viz.*

Take a line, and apply one end of it to any corner of the room; then meaſure the room, going into every cor-

ner

rer with the line, 'till you come to the place where you firſt began; then ſee how many feet and Inches the ſtring contains, and ſet it down for the compaſs or round; then take the height by the ſame method.

Glaziers are to take the depth and breadth of their work, and multiply one by the other, dividing by 144; glaſs being meaſured as board.

Having thus ſhewn the methods of caſting up dimenſions, I come now to particulars; and the firſt of

Glaziers Work, by the Foot.

If the windows be ſquare, multiply the length by the breadth, which will produce the contents, as aboveſaid

Example.

By croſs-multiplication.		By practice.	
Feet. In.		Feet. In.	
8—9 high.		8 — 9	
7—3 broad		7 feet 3.	
56—0		61—3	
2—0		3 inches $\frac{1}{4}$ 2—$2\frac{1}{4}$	
5—3		63—$5\frac{1}{4}$	Anſ.
$2\frac{1}{4}$			
63—$5\frac{1}{4}$			

If the windows are arched, or have a curved form, no allowance is made, by reaſon of the extraordinary trouble, and waſte of time, expence of waſte of glaſs, &c. And the dimenſions taken from the higheſt part of the arch, down to the bottom of the window, form the height or length, which multiply by the breadth, and the product will be the anſwer in feet, &c.

Glaziers are often ſo very nice as to take their dimenſions, and to meaſure to a quarter of an inch.

Example.

Examples.

	Feet.	In.
	4—	3 ½ long.
	2—	7 ¼ broad.
	8—	7
6 Inches is ½	2—	1 ¾
1 ½ is ¼		6 ¾
¼ is ⅙		1
	11—	4 ¼

To measure the Peak End of a House, or any Triangle. Fig. 3.

Queſt. Let ABC be the peak end of a roof, whoſe baſe AC meaſures 24 feet, and the perpendicular line BD from the top of the peak 16, I demand how many ſquare yards it contains;

Multiply ½ the perpendicular BD by the whole baſe, or line AC; or elſe, multiply the whole perpendicular BD by ½ the baſe AC, *viz.* AD, or CD, gives the content in feet, which divide by 100, gives the ſquares, or by 9, gives ſquare yards.

Thus AC 24 feet multiplied by ½ BD, 16 feet, (*viz.* 8 feet) gives 192 feet, *viz*, 1 ſquare 92 feet; or divided by 9, gives 21 ⅓ ſquare yards of plaiſtering. And thus for any triangle.

Of Board and Timber Meaſure.

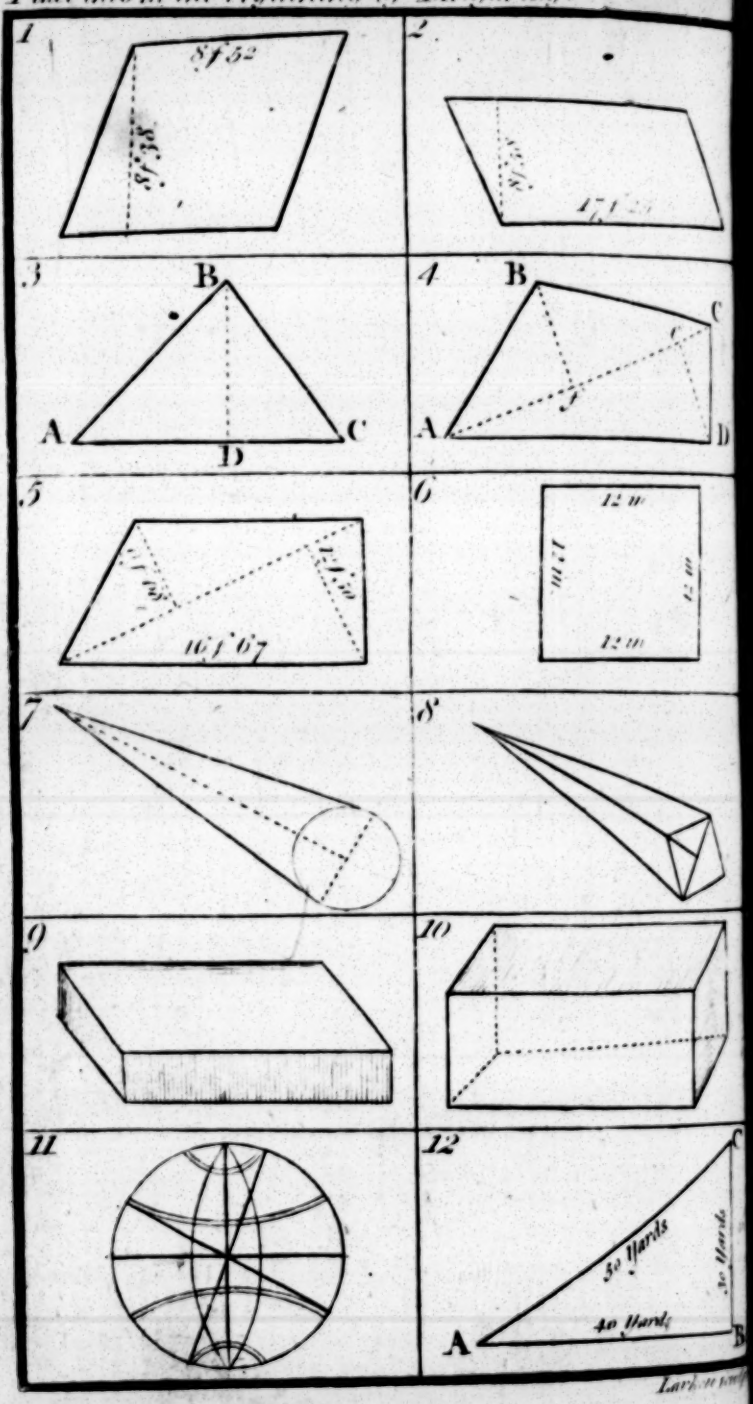
1. If the board be regular, multiply the length in inches by the breadth in inches, and divide by 144, gives the anſwer. Or, multiply the length in feet by the breadth in inches, and divide by 12, gives the anſwer.

Queſt. There is a board 18 feet long, and 5 inches wide, how many feet does it contain? Anſ. 7 ½ feet.

If the board be wider at one end than the other, add the two breadths together, and take half for a mean breadth, which multiply the length by as before directed.

Queſt.

Place this at the beginning of Measuring



Queſt. There is a board 19 inches at one end, and 9 at the other, and 8 feet long, what is the content?

Anſ. Add 19 to 9 make 28, half of which is 14, the mean breadth, which multiplied by 8 feet long make 112, which divided by 12 produces 9 $\frac{1}{3}$ feet, the content required.

To meaſure an oval Table, or Ellipſis, as ſuppoſe the Length be 36 *Inches, and the Breadth* 16.

Multiply the longeſt diameter by the ſhorteſt, and the product multiply again by .7854, and the product is the anſwer in inches.

Ex. Suppoſe the diameter of a globe is 42 inches, what is the ſolid content, as *fig.* 11.

Firſt, find the circumference thereof as follows, viz.

As 7 is to 22, ſo is 42 to 132.

42

44
88
---
7) 924
---
132 Circumference

Then multiply the circumference by the diameter, and multiply that product by $\frac{1}{6}$ of the diameter, this laſt product will be the ſolid content required, viz.

132 Circumference
42 Diameter

264
528

5544 Products
7 the $\frac{1}{6}$ of the dividend

38808 the ſolid content in inches

which may be brought into ſolid feet or yards, by dividing by

by 1728 for feet, and for yards, by dividing the feet by 27.

If the circumference is given to find the diameter, proceed as follows, viz. as 2 is to 7, ſo is 132 to 42.

Again.

Multiply the circumference in feet by itſelf, and then that product by this decimal, 0,0353678, and this laſt product will be the content in yards.

To find the ſuperficial content of a pyramid or cone, multiply half the ſum of the ſides, or half the circumference of the baſe by the ſlant height in feet, and the product divided by 9, will be ſquare yards.

If the pyramid or cone be not compleat, that is, if a part of the top be wanting, add together the circumference at top and bottom, and half their ſum being multiplied by the ſlant height, will be the ſuperficial content.

It may not here be improper, as well for refreſhing the memory, as for improving the underſtanding, and forming the mind with proper notions and ideas of meaſuring, to give a ſhort repetition by demonſtrative geometrical figures, to explain what hath been verbally and arithmetically before expreſſed.

Superficial or flat Meaſure.

Some of which is meaſured by the foot ſquare; as are boards, glaſs, marble, free-ſtones and pavements. The dimenſions are taken in feet and inches, and the content given in ſquare feet.

Example 1.

Suppoſe there is an oblong or long ſquare, let it be board, glaſs, or pavement, &c. that contains on the longeſt ſide (or the length) 24 feet and half, and the ſhorteſt ſide (or breadth) 14 feet ½, as in the following figure, viz.

14 F. $\frac{1}{4}$	F. 24 $\frac{1}{2}$. Area or content is 349 F. 125

```
  14,25 breadth.
  24.5  length.
  ----
  7125
 5700
2850
-------
349,125
```

Rule. Multiply the length by the breadth, and cut off as many places to the right-hand, as there are decimals in the length and breadth.

Example 2.

Suppose a board or piece of glass be in the form of figure the first, called a rhombus; that is, in the shape of a common pane of glass, or diamond-square

Rule. To measure which, multiply the breadth by the length of any of the sides (for they are all equal) and cut off as many places to the right-hand as there are decimal places in both multiplicand and multiplier, as hinted before: As suppose the breadth 8 feet 38 parts, and the length of the side to be 8 feet 52 parts, then the work will appear thus:

```
  F. P.
  8, 52
  8, 38
  -----
   6816
  2556
 6816
 -------
71, 3976
```

Here the multiplication is as in whole numbers, and the content or answer is found to be 71 square feet, and $\frac{3976}{10000}$ ten thousandths of a foot, or 4 inches $\frac{1}{4}$.

3976 is separated by a comma, as above directed, and are so many 10000 parts of a foot.

Example 3.

Again, admit a piece of measurement to be of the form of figure the second, called a rhomboides; its length 17 feet 25 parts, and its breadth 8 feet 58 parts.

f. p.	
17, 25	length.
8, 58	breadth.

The fore-mentioned figure hath its opposide sides equal, and its opposite angles alike.

13800
8625
13800

148,0050 Answer; the content is 148 feet

Once more,

Suppose a board, piece of glass, pavement, or piece of land, to represent, or be in the form of a triangle, or three-corner'd figure, expressed as in the shape of figure the third. Every triangle is half an oblong, whose length and breadth is equal to the perpendicular and base.

Note, The dotted line is the perpendicular, the bottom line the base, and the line from the top of the perpendicular to the left angle of the base, is called the hypothenuse.

The measuring of a triangle hath been always shewn, and therefore I shall desist speaking any further thereto.

The fourth figure is called a trapezium, and consists of 4 sides: This figure, before it can be measured, must be divided into two triangles, thus, viz. by a line drawn from one angle or corner, to the angle opposite to it, as in the figure.

Example 4.

Suppose the dimensions of the trapezium before described to be; viz. the base 16 F. 67; the one perpendicular 12 F. 50, and the other 9 F. 68 (as in figure 5) what is the content?

The

The Operations.	F. P.	
One perpendicular	12,50	add
The other	9,68	
The ſum is	22,18	
The half ſum is	11,09,	which
multiply by the whole baſe	16,67	
produces	184,8703	

which is 148 feet, and $\frac{8703}{10000}$ of a foot, equal to 10 and half.

Note. If two ſides of a trapezium are parallel, that is, equi-diſtant, then add them together, and half the ſum multiplied by the neareſt diſtance between thoſe two ſides, gives the content; or if you meaſure in the middle between two ſides or lines that are of equal length, the anſwer will be the ſame.

Note alſo, The painting, plaſtering, &c. of irregular pieces in the forms of triangles or not, if divided as above, may be meaſured as before, and brought into yards (if the content is to be ſo given in) by dividing by 9, as before ſhewn.

The cuſtomary way to meaſure timber is this: with a ſmall ſtring or cord, take the circumference of the tree (which is done in any place where the buyer and ſeller can agree) then double this ſtring into 4 parts, and apply it to your rule, and that length is called the girt, or $\frac{1}{4}$ part of the circumference; and it is alſo cuſtomary to abate one inch of the girt, on account of the bark.

Having got the girt, multiply it by itſelf, that is, ſquare it, and multiply that product by the length of the tree in feet, and divide by 144, gives the content; or multiply it by the length in inches, and divide by 1728, gives the content.

Note, Few perſons mind leſs than $\frac{1}{2}$ a foot in the length of a tree, except it is very large.

Queſt. There is a tree 14 inches girt, and 9 feet long, I demand the content? Anſ. 12 $\frac{1}{4}$ feet.

Firſt, 14 multiply by 14, is 196, this × 9, the length = 1764. which divide by 144, gives 12 feet, 36 inches, which is $\frac{1}{4}$ of 144.

Queſt. There is a tree 10 ½ inches girt, and 12 feet ½ long, I demand the content? Anſ. 9 ½ feet. For 10.5 × 10.5 = 110.25 × 12.5 = 1378.125 ÷ 144 = 9.57 feet, or 9 feet, 82 inches.

Having the breadth and depth of a piece of timber or ſtone; to know how much in length of it will make a ſolid foot; multiply one by the other, and let the product be a diviſor to 1728, thus:

36
24

144
72
864) 1728 (2 inches in length
1728

0

And thus you may make a table to ſerve all breadths and depths, by which much labour may be ſaved in multiplying and dividing, and yet meaſure any piece of timber thereby very exactly.

In ſquare timber, you muſt make the inches ſquared a diviſor to 1728, and the quotient will be the anſwer in inches at length, that will make a foot ſolid.

Example.

If a piece of timber be 6 inches ſquare, what length of it will make a foot?

36) 1728 (48 Anſ. 48 inches or 4 feet in length.
144

288
288
---
(0)

Here the ſquare of 6 is 36, &c.

Of tapering Timber.

Some perſons will take but one girt, though a tree be very long and tapering; but this is certainly very wrong, as

as it may do injuſtice to either the buyer or ſeller. The beſt way is, to meaſure ſuch a tree, as if it were two or three diſtinct trees, by taking two or three ſeveral lengths and girts.

Some, indeed, take two girts, one at the great and the other at the ſmall end, and add them together, and take the $\frac{1}{2}$ of it for a mean girt (as in board meaſure) but this is a hurt to the buyer, and very erroneous; whereas they ſhould multiply one girt by the other, and extract the ſquare root for a *mean girt*.

Queſt. Suppoſe a tree 20 inches girt at one end, and 40 at the other, and 9 feet long, I demand the content?

By the cuſtomary way, the *mean girt* will be 30 inches, and the content will be 56 feet, 36 inches $= \frac{1}{4}$ of another foot. But, according to the true way, the *mean girt* is but 28.28, and the content but 49.98 feet, viz. 49 feet, 11 inches, which is 6 feet 39 inches leſs than the other, which is a ſenſible difference in many loads of timber.

Note, In ſome counties 40 feet make a load, and in others 50 feet make a load.

When there are 50 feet to the load, then to caſt up the content, at any given price, the rule is, Multiply the content or number of feet, by the price in ſhillings, and cut off the three firſt figures from the right to the left-hand: So will the figures towards the left-hand be pounds ſterling, and the other will be decimal parts of a £.

Example.

Queſt. Suppoſe I meaſured 6 trees, and their content be 548 feet, at 11. 10s. per load?

I multiply 548 by 30, and it gives 16440, which I cut off thus, 16|440, and it is l. 16.440 viz. 16l. 8s. 9d. $\frac{1}{2}$.

N. B. Stone is meaſured the ſame, only obſerve, 8 inches make 1 foot of ſtone.

Of BRICK WORK.

BRICK work is meaſured by the ſquare rod, viz. 16 feet $\frac{1}{2}$ in length, and 16 $\frac{1}{2}$ in breadth, make 272 $\frac{1}{4}$ feet, or 1 ſquare rod; but, for common practice, 272 feet only is ſufficient.

All ſorts of brick-work is reduced to the ſtandard of 1 ½ brick thick, of which I ſhall give you a further notion by and by.

Of Work at 1 ½ *Brick thick, the Standard.*

Multiply the length by the height in feet, and divide by 272, the quotient gives the ſquare rods, and the remainder, the feet, or parts of a rod.

Queſt. A gentleman built a brick wall round his garden which was 998 feet long, 9 feet high, and 1 ½ brick thickneſs, I demand how many rods it contains. Anſ. 33 rods 6 feet.

Here I multiply 998, the length by 9, the height, and it gives 8982 feet, which I divide by 272, the feet in a rod, and it gives 33 rods, 6 feet. Anſ.

Suppoſe it was 1 brick thick, or ſuppoſe it was 2, or 3 bricks thick.

Having found the content, at 1 ½ brick thick, as before directed, ſay thus:

As 3 (the ½ bricks in the ſtandard meaſure) is to the content in ſtandard meaſure, at 1 ½ brick thick, ſo is the number of half bricks in the wall to the content, at that thickneſs.

Queſt. There is a brick wall 998 feet round, and 9 feet high, what is the content at 2 ½ bricks thick?

The content at 1 ½ thick, was found in the laſt queſtion to be 33 rods, 6 feet, ſay, therefore,

As 3 to 33,6, ſo is 5 half bricks, viz. the thickneſs, at 2 ½ bricks thick to the content, at that thickneſs, viz. 55 rods 10 feet.

But any thickneſs may be done at one operation,

For having multiplied the length by the height, divide by any of the following numbers, that are ſet againſt the given thickneſs, and you have the content in rods at once, and the remainder is feet.

Note, Though there be decimals in the diviſors, you may divide by the whole numbers for common uſe.

For

For 1		408.3
1 ½		272.25
2	Brick	204.2
2 ½	thick	163.3
3	divide	136.12
3 ½	by	116.6
4		102.1
4 ½		90.7
5		81.7

Queſt. There is a wall 15.5 feet long, and 9.5 feet high; what is the content, at 3 ½ bricks thick? Anſwer, 1 rod, 2 tenths: For 1 multiply 15.5 by 9.5 = 147.25, which divided by 116.6 the diviſor for 3 ½ bricks, gives 1 rod, 2 tenths. And thus for any thickneſs, for at 4 ½ thick, it is 1.5 rod, viz 1 ½.

By the Slip or ſliding Rule.

There is a wall 9 feet high, and 76 feet long, and 1 ½ brick thick, I demand the content? Anſ. 2 rods 140 feet, or better than 2 ½ rods.

Set 272 on the ſlip to the height 9 above it, then againſt 76, the length on the ſlip, is 2 ½ or better on the rule.

A Rule for any Thickneſs.

Set any of the former diviſors, anſwering any thickneſs on the ſlip, to the height; then againſt the length is the anſwer. Thus the ſame wall at three bricks thick.

Set 136 to 9, then againſt 76 you have 5 rods, the content at three bricks thick.

A Table to reduce Brick Work to Standard Meaſure, i. e. *a Brick and a Half.*

Brick			
1	Subtract ⅓		
2	Add ⅓		
3	Multip. by	2	Reduces to a brick and half.
4 ½		3	
6		4	

Example.

Suppoſe a garden wall to be 254 feet round, and 12 feet 7 inches high, and three bricks thick; how many rods doth it contain.

In

	254
	12
	3048
In 6 is $\frac{1}{2}$	127
1 is $\frac{1}{6}$	21—2
	3196—2
	2

In this operation, the aggregate, or total, is multiplied by 2, because twice 3 is 6, the number of half bricks; and that reduces the work to ſtandard meaſure, as by the table as above.

272) 6392—4 (23 $\frac{1}{2}$ rods

Of SOLID MEASURE.

SOlid or cube meaſure hath been already defined, (as well as ſuperficial meaſure) ſome of the figures of which are numbered 6, 7, and 8.

To meaſure a ſolid in form of a cube, which hath length breadth and thickneſs all equal, you muſt multiply theſe into themſelves; and the laſt product gives the ſolidity or content either of wood or ſtone. A cube hath ſix ſides, and is in ſhape like a dye.

Example.

What is the ſolidity of a cube whoſe ſide is 12 inches? as fig. 6.

	12
	12
	144
	12
	1728 the ſolid inches in a foot.

To meaſure a ſolid of unequal length, breadth and thickneſs; multiply the length by the breadth, and that product by the height; the laſt product will be the ſolidity.

Example.

What is the ſolidity of a block of marble, whoſe length is 10 feet, breadth 5 $\frac{3}{4}$ feet, and depth 3 $\frac{1}{2}$ feet?

575

5,75
3,5

2875
1725

20,125
10

201,250 the ſolidity.

The cone is meaſured by finding the ſuperficial inches at the bottom or baſe thereof; which multiply by one third of the inches in length, and that product is the ſolid quantity in inches; which inches divide by 1728, and the quotient gives the anſwer in ſolid feet.

Example of finding the ſolidity of the cone decimally, without dividing by 1728.

Let the diameter of the baſe be 2 feet 6 inches, and the altitude 10 feet 6 inches.

2,5 the diameter
2,5

125
50

6,25 the ſquare of the diameter.
,7854

2500
3125
5000
4375

4,908750 the area of the baſe.
3,5 one third of the height.

24543750
14726250

17,1806250 the ſolidity in feet.

This method may ſerve for tapering timber, or for any other thing of the ſhape repreſented in fig. 7.

To meaſure a Pyramid.

Rule. Multiply the area of the baſe or bottom, by one third of the perpendicular height, and the laſt product will be the content in ſolid feet; or one third part of the area at the baſe, multiplied by the whole altitude, gives the content alſo.

Examples of both Ways.

Suppoſe there is given a ſquare pyramid (or figure like a ſpire ſteeple, as fig. 8.) the ſide of whoſe baſe is 4 feet and half, and the perpendicular height 18 feet, what is the ſolid content?

4,5	6,75 $\frac{1}{3}$ of 20, 25 the area at the baſe
4,5	18 the whole height
225	5400
180	675
20,25	121,50 Anſwer 121,50 as before
$6\frac{1}{3}$ of the altitude	
121,50 Anſwer 121 feet, and $\frac{50}{100}$ or $\frac{1}{2}$	

When one ſide of the baſe is longer than the other, as admit one to be 2 $F\frac{1}{2}$, and the other 1 $F\frac{1}{2}$; then multiply the length of the baſe by the breadth, and that product by one third of the height, as before.

Of SURVEYING.

LAND meaſure is a part of the mathematics, and to ſurvey it true, and in a maſterly manner, you ſhould be provided, 1. With a chain called Gunter's chain. 2. A caſe of inſtruments. 3. A parallel ruler. 4. A plain table. 5. A platting ſcale, or protractor. And to make it more compleat, a theodolite.

But for want of theſe inſtruments, a common regular field, or little piece of ground may be meaſured by a chain only

only, or for want of that, a cord, or rod pole, or any ſuch thing; but this muſt not be depended on for truth.

Note, 1. All land is now generally meaſured by a chain containing 4 rods or poles, in length (viz. 22 yards) according to a ſtatute made in the 33d. of Edward I. Anno 1305, which ſays, *That a ſquare acre ſhall contain* 160 rods, viz. 40 rods in length, and 4 rods in breadth, make 160 rods, or 1 acre of ground

Note, 2. The chain is a chain made of iron, containing 100 links, each in length 7.92 inches (or nearly 8 inches) 100 of which is 792 inches, or 22 yards (viz. 4 rods) therefore 1 chain in length, or 10 in breadth, or 10 in length, and 1 in breadth, make an acre.

Note, 3. For want of a chain, you may take a cord 22 yards or 4 rods long, or any number of rods long you pleaſe, dividing it into halves and quarters, with which you may meaſure any common field within a trifle of truth, or at leaſt for common ſatisfaction.

Having provided yourſelf with a chain, or any convenient line, if the field, or piece of ground be regular, viz. a ſquare, or the oppoſite ſides alike, then meaſure the length and the breadth in rods or parts, and multiply the length by the breadth, and divide the product by 160, the rods in an acre, you have the content.

Queſt. There is a field in the form of a long ſquare (called a parallelogram) whoſe length is 35 rods, and breadth 24 rods, I demand the content in acres? Anſ. 5 acres, 1 rood.

Firſt, I multiply 35, the length, by 24, the breadth, and it gives 840 rods, which I divide by 160, gives 5 acres, and 40 remains, which I multiply by 4 (becauſe 4 rods make 1 acre) and divide again by 160, gives 1 rood.

Queſt. There is a three ſided or triangular field, as fig. 3. ABC, the ſide AC is 51.5 rods, and the perpendicular BD is 34 rods, how many acres does it contain? Anſ. 5 $\frac{2}{3}$ acres nearly.

Note, You muſt firſt of all meaſure the ſide from A to C, called the baſe, which ſuppoſe 51 $\frac{1}{2}$ rods, then meaſure half way from A to C, and from D meaſure ſtreight up to the point B, which is called the perpendicular, which ſuppoſe to be 34 rods: Now, I told you before, that the baſe multiplied by $\frac{1}{2}$, the perpendicular gives the content; that

is

is 51.5 multiplied by 17. ($\frac{1}{2}$ the perpendicular) gives 875.5, which divide by 160, gives 5.47 acres; that is, very near 5 $\frac{1}{2}$ acres.

To measure any four-sided Field, whose Sides are unequal, called a Trapezium. Fig. 4.

Queſt. There is a trapezium, or four sided field, or piece of ground, A B C D, whoſe baſe A C is 64 rods, and the perpendicular B f is 60, and the other perpendicular D e is 40: I demand the content in acres? Anſw. 20 acres.

Firſt, To meaſure this field, go ſtreight croſs it from the corner A to the corner C, which here is called the baſe, and meaſures 64 rods: Then meaſure right ſtreight from the point B to f, which is 60 rods, and right ſtreight from D to e, which is 40 rods. This done, the rule is.

Multiply the whole baſe A C 64 by $\frac{1}{2}$ B f 60 (viz. 30) and it gives 1920 rods, the content of the triangle A B C: Then again multiply the baſe A C by $\frac{1}{2}$ D e 40 (viz. 20) and it gives 1280 rods, the content of the triangle A C D. Add thoſe 2 together, viz. 1920, and 1280 rods, gives 3200 rods, which divide by 160, the rods in an acre, gives 20 for the anſwer.

If the field has more ſides, you may meaſure it after the ſame manner, by dividing it into triangles, always remembering to multiply the baſe by $\frac{1}{2}$ of every perpendicular that falls upon it.

Of GAUGING.

THERE is a near ſort of kindred and affinity between the art of meaſuring of timber, and that of gauging or meaſuring of liquors; for both are performed by cube or ſolid meaſure, and therefore not improper cloſely to follow one another. For as often as there are found 1728 ſolid or cubic inches in a piece of timber (of what form ſoever) ſo many ſolid feet it is ſaid to contain: So likewiſe in the art of gauging, ſo many times as 282 (the ſolid inches in a beer or ale-gallon) are found in any veſſel of ſuch liquor, ſo many gallons is ſuch a veſſel ſaid to hold; and ſo of wine but in that the diviſor alters, it being 231 ſolid or cubic inches.

And

And the gallon of dry measure contains 272 $\frac{1}{4}$ cubical inches.

Note, Every cubical foot in beer or ale measure, contains 6 gallons and almost a pint.

The same in wine measure is 7 gallons, and almost two quarts.

A cubical foot of dry measure contains 6 gallons, and somewhat above one third of a gallon.

141 inches make 2 quarts of beer or ale; 70 inches $\frac{1}{2}$ one quart, and 35 inches $\frac{1}{4}$ a pint.

To find the content of any vessel that hath the form of a cube, that is a figure whose breadth, depth and length are all equal, and is very well represented by the shape of a dye commonly played with, as *fig.* 6.

Rule. Multiply the side into itself, and then again that product by the side; which last product, if for beer or ale, divide by 282, the inches in a beer or ale gallon; and for wine, brandy, &c. by 231, the inches contained in a wine gallon.

Example.

Suppose a cube whose side is 79 inches, I demand the solid content in beer and wine gallons.

```
  79          282)493039(1748 beer or ale gallons
  79              282...
 ---              ------
 711              2110
 553              1974                wine gall.
 ---              ------        231)493039(2134
6241               1363            462...
  79               1128            ------
 ----              ------            310
56169               2359            231
43687               2256            ------
 ----              ------            793
493039 cube inches.  (103)           693
                                     ----
                                     1009
                                      924
                                     ----
                                     (85)
```

To find the content of a parallelepipedon which is a ſolid figure contained under ſix ſides, of which the oppoſites are parallel, and of the form of figure the 9th.

Rule. Multiply the length by the breadth, and that product by the depth: and then divide by 282 for beer or ale, and 231 for wine.

Example.

Admit the length to be 95 inches, and the breadth 62 inches, and the depth 23 inches; what is the content in beer and wine gallons?

95 length.
62 breadth.

231) 135470 (586 wine gallons.
1155
1997
&c.
Rem. (104)

190
570
5890

5890
23 depth.

17670
11780

282) 135470 (480 beer gallons.
1128
&c.
Rem. (110)

To gauge a back or ſquare Tun, as Fig. 10.

Example.

Suppoſe its length 112 inches, breadth 72 inches, and its depth 48 inches; what is its content in ſolid inches, and alſo its contents in beer gallons?

112 length.
72 breadth.

224
784

8064
48 depth.

64512
32256

387072 solid inches.

282) 387072 (1372 gallons, Answer.
282...

1050
846

2047
1974

732
564

(168)

To bring these gallons into barrels divide them by 36, the gallons in a barrel of beer, thus:

36) 1372 (38
108.

292
288

(4)

Answer, 38 barrels and $\frac{4}{9}$, or $\frac{1}{9}$ of a barrel; and for the remainder 168, it is something above half a gallon.

How to gauge a Copper, round Tub or Cask.

If it be of equal bigness both at top and bottom, find the cube inches that it contains, and then bring it into gallons as before.

But if it be wider at the top than at the bottom, or the contrary; then take the width or diameter of the tub somewhat above the middle, next to the broadest end, if it be taper; or find the mean diameter thus: Suppose the bung diameter to be 26 inches, and the head diameter of the cask to be 23 inches, the difference between which is 3 inches, two thirds of which make 2 inches; which added to the lesser of the two diameters, make 25 for the mean diameter sought. Having the mean diameter, proceed to find the content in solid inches, thus: First square the mean diameter, multiply that square by 0,7854, and the product will give the content of the liquor at one inch deep, and this multiplied by the length, will give the solid inches in the copper, tub or cask.

Example.

Suppose the mean diameter to be 72 inches, and the length 56 inches.

72		4071,5136
72		56
144		144290816
504		203575680
5184	square.	228004,7616
,7854		
20736		
25920		
41472		
36288		

4071,5136 content at 1 inch deep.

The above found solid inches 228004 brought into gallons make 808, and 148 solid inches remain, something above half a gallon; in all 22 barrels, 16 gallons ½ of beer.

Again, Admit the mean diameter of a cask of wine to be 14 inches, and the length 72 inches, what is the content in wine gallons?

14	0,7854
14	196
56	47124
14	70686
196	7854
	153,9384
	72
	3078768
	10775688

231) 11083,5648 (47,9
924

1843
1617 Anſwer 48 gal. nearly.

2265
2079

1866 &c.

The content of a ſpheroid may be found thus: Multiply the ſquare of the ſhorteſt diameter by the longeſt diameter, and then divide by 538 for beer gallons, and by 441 for wine gallons.

Example.

Suppoſe a ſpheroid whoſe ſhorteſt diameter is 74 inches and the longeſt 125 inches; what is the content in beer and wine gallons?

74
74

296
518

5476 the ſquare of the ſhorteſt diameter.
125 the longeſt diameter.

27380
65712

538) 684500 (1272 gallons of beer.
538

1465, &c.

(164)

441) 684500 (1552 gallons of wine.
441

2435, &c.

(68)

To find the contents of the fruſtum of a ſpheroid. To twice the ſquare of the bung diameter, add once the ſquare of the head, and multiply that ſum by the length: Then for beer divide by 1077; and for wine gallons divide by 882.

Example.

A cask whoſe bung diameter is 23 inches, head diameter 21 inches, and length 27 inches; what is the content in beer and wine gallons?

23		21	
23		21	
69		21	
46		42	
529			
add 529	twice the ſquare of the bung diam.		
529			
441	once that of the head diameter.		
1499			
27	the length.		
10493			
2998			
1077) 40473 (37 beer gallons.			
3231			
8163		882) 40473 (45 wine gallons.	
7539		3528	
(624)		5193	
		4410	
		(783)	

How to gauge or tell the Content of any common Cooler, or regular Cask, or Ciſtern, in Gallons or Buſhels.

I ſhall give you ſome ſhort inſtructions, by which you may tell the content of ſeveral things near enough truth, for your own ſatisfaction: But, to be a practical gauger, you

you ought to underſtand ſeveral branches of the mathematics.

To tell the Content of a Malt Ciſtern in Gallons and Buſhels.

Queſt. There is a ciſtern 6.5 feet long, 4 feet wide and 3.5 feet deep: I demand its area, and content in gallons and malt buſhels?

Note 1. Area ſignifies the ſuperficial content, or content at one inch deep; which multiplied by the depth, gives the content itſelf.

Note 2. That 282 inches make 1 gallon of ale, water, &c. 231 a gallon of wine, and 2150 inches, 1 buſhel; which are your diviſors for all regular figures.

Rule. Multiply the length, 78 inches by the breadth 48, and it gives 3744 inches, which divide by 282, gives 13.276, the area, at 1 inch deep, or divide by 2150, gives 1.741, the area in buſhels. The area multiplied by the depth 42 inches, gives 557.592 gallons. The area for malt multiplied by 42, gives 73.122, the content in buſhels.

Note, If the area be not required, or you do not underſtand decimals, you may more eaſily find the content at once, thus: Multiply the length, breadth and depth, in inches together, gives 157248, which divide by 282, gives 557 gallons $\frac{1}{2}$, or 157248 divided by 2150, gives 73 buſhels $\frac{1}{10}$ as before.

To find the Area by the Sliding Rule.

Set 282 upon B to 48, the breadth on A; then againſt 78, the length on B, is 13.276, the area in gallons.

For malt. Set 2150 on B to 48 on A; then againſt 78 the length on B, is 1.741 on A, the area in buſhels. And thus for any regular figure.

To gauge a Tub or Cooler in the Form of a Cylinder, viz. *whoſe Top and Bottom Diameters are equal.*

Rule. Square the diameter, viz. multiply it by itſelf, and this product by the depth, then divide by 359 for beer gallons, 294 for wine, and 2737 (or rather by 2737.47) for malt.

Queſt. There is a tub 4 feet 2 inches diameter, and 3 feet 4 inches deep: I demand the content in beer, wine and malt?

I ſquare the diameter 50, which is 2500, and multiply this by the depth, 40 inches, gives 100000; which divide by 359, gives 278 ale gallons; divide by 294, gives 340 wine gallons, and by 2737 only, gives 36.5 malt buſhels.

Note. If the figure be the form of a triangle, or trapezium, you muſt proceed to meaſure them as before directed, and after having multiplied by the depth, divide by 282 for beer, 231 for wine, 2150 for malt, gives the content.

Queſt. There is a tub, whoſe top diameter is 40 inches, bottom 30 inches, and the depth 60 inches; I demand the content in beer, wine and malt?

There are ſeveral ways to do this. One is this, multiply the diameters together, and extract the ſquare root for a mean diameter, which is here 34.64. This multiplied by itſelf, and divided by 359, gives the content in gallons, or by 2737, gives the malt buſhels.

Or more eaſily thus, though not ſo true.

Add the diameters together, and take the $\frac{1}{2}$ for a mean, is 35. Now $35 \times 35 = 1225 \times 60 = 73500$, which divided by 359, gives about 205 gallons; and ſo for malt, viz. gives 26 buſhels $\frac{8}{10}$.

For a Couch of Malt.

If it be a regular ſquare only, multiply the length breadth and depth together, and divide by 2150, gives the buſhels.

If it be a triangle, or trapezium, proceed as before directed, and divide ſtill by 2150.

If the couch be uneven, take the depth at 4 or 5 places, add them all together, and divide by the number of places you took the depth at, for a mean depth.

Queſt. There is a bed, or couch of malt, in the form of a long ſquare, whoſe length is 35 feet, breadth 16 feet, and I find the mean depth to be 8.5 inches, viz. $8\frac{1}{2}$ inches. I demand the contents.

Thus 420 inches $\times 192 = 80640 \times 8.5 = 68540$; this divided by 2150, gives 318.8 buſhels.

Of

Of Cask Gauging.

There is a great variety in gauging casks; but the following methods will be near enough truth for all common casks, ſuch as barrels, buts, &c. that are pretty much bulged.

Firſt, Having taken the bung and head diameters, the rule is, To the ſum and half the ſum of the ſquares of the bung and head diameters, add $\frac{1}{2}$ the difference of the ſaid ſquares: This ſum multiply by the length, and divide by 1077 for beer, and 882 for wine gallons.

2 *Rule*, which is as true and much eaſier.

To the double ſquare of the bung diameter add the ſquare of the head diameter; then multiply this ſum by the length of the cask, and divide by 1077 for beer, or 882 for wine.

Queſt. There is a cask whoſe bung diameter is 28 inches, head diameter 25 inches, length 36; I demand the content in ale gallons?

Firſt the ſquare of the bung diameter 28 is 784; which doubled is 1568. Then the ſquare of the head, viz. $25 \times 25 = 625$, which added to 1568, is 2193, this $\times 36$, the length is 78948, which divided by 1077, gives 73 gallons, 2 pints, for beer; and divided by 882, gives $89\frac{1}{2}$ gallons wine and brandy.

Note 1. If you find the area of the bung, and head diameters, and add twice the area of the bung: viz. 2.184 to the area of the head 1.741, it is 6.109, which multiplied by $\frac{1}{3}$ of the caſk's length, viz. 12, gives 73.308 gallons as before.

Theſe methods holding good for moſt casks, I ſhall give no more examples.

Note 2. If one of the head diameters be larger than the other, and the cask is ſtraight in the ſides, like ſome churns, then find a mean diameter throughout, and proceed as therein directed.

Of Croſs Multiplication.

There are two methods. 1. by multiplication only.

Rule Multiply feet by feet produces feet; multiply feet by inches produces inches, and multiply inches by inches, gives the 12th part of an inch.

Note

Note, 12 ſeconds make 1 part, 12 parts make 1 inch, and 12 inches 1 foot.

2. By multiplication and diviſion.

Rule. Having placed the ſmalleſt ſum for the multiplier, multiply the very laſt place of the multiplicand towards the right-hand by the firſt place, or name of the multiplier, and carry 1 for every 12, ſetting down what is over 12 under the part you multiplied, then take the parts of the multiplier as in practice, carrying as before 1 for every 12.

But an example will render it more eaſy, if I give it both ways.

	feet.	inch.	parts.		feet.	inch.
Multiply	4	3	4	by	3	9
by	3	9				
	12	10				
	3	2	6			
	16	—	6			

feet. inch. parts.

Firſt, I begin and multiply the top 4 feet, 3 inches, and 4 parts, 3 feet by (carrying one for every 12) ſaying 3 times 4 is 12 parts, that is 0 and carry 1; then 3 times 3 is 9, and 1 I carried is 10 inches; then 3 times 4 is 12 feet; and then I multiply 4 feet 3 inches, 4 parts, by the lower 9 inches, ſaying, 9 times 4 is 36, that is 36 ſeconds, which is 0 and carry 3; then 9 times 3 is 27, and 3 I carried is 30, that is 6 and carry 2; laſtly, 9 times 4 is 36, and 2 is 38, which 38 inches is 3 feet 2 inches.

Second Method.

I firſt multiply the firſt or top line as before, and find it as before, 12 : 10 : 0; and now I take the parts as in practice, ſaying, 6 inches is ½ of a foot, &c. *See the work.*

feet.

		feet.	inch.	part.
		4	3	4
		3	9	
inch.		12	10	—
6		2	1	8
3	$\frac{1}{2}$	1	0	10
	$\frac{1}{2}$			
		16	—	6 as before.

Queſt. There is a ſquare piece of ground ſet out upon a heath or common, in order to form a camp for 1000 ſoldiers, each ſide containing 60 rods; how many acres does it contain? Anſwer, 22 $\frac{1}{4}$ acres.

For $60 \times 60 = 3600$, which divide by $160 = 22$ acres, 80 rods, or 22 $\frac{1}{2}$ acres. Thus much for Arithmetic.

Of MONEY.

THE current coin of this nation, is made either of copper, ſilver or gold. Of copper are made the farthings and halfpence. Of ſilver, the pennies, two-pences, threepences, groats, ſixpences, ſhillings, half crowns and crowns: But there is very little ſilver coined below the ſixpence. Of gold is made the quarter guinea, the half guinea, the guinea, and the five guinea piece; beſides there are foreign pieces of gold that paſs, though with ſome ſcruple; as the moidore at 27s. pieces of 36s. each, and others of 31. 12s. There are alſo ſome few ancient pieces of gold of a pale colour, as being alloyed with ſilver, and therefore may be reckoned the beſt, and ſometimes called angel or crown gold; whereas the old gold or broad pieces, are moſtly alloyed with copper, which makes them of a rediſh colour.

Imaginary Money.

We appropriate ſeveral names to money, of which there is no coin; as,

	s.	d.
The pound of ——— ——— ———	20	0
The mark ——— ——— ———	13	4

The

The noble, or half mark —— —— —— 6 8
The angel —— —— —— —— 10 0

In England accompts are kept in pounds, ſhillings and pence ſterling; and the marks are derived from their names in Latin, viz. *l.* for libræ or pounds, *s.* for ſolidi or ſhillings, *d.* for denarii or pence, *qr.* for quadrantes or farthings, 4 making a penny; and expreſſed or ſet down thus,

l.	*s.*	*d.*	*qr.*
4	16	8	2

but better thus, *l.* 4—16—8 ½; the mark for pounds ſtanding before the ſum, denominates the firſt number, and the others are known of courſe, for after pounds follow ſhillings, and after ſhillings ſucceed pence, &c. When the price of any thing is ſhillings and pence, it is ſet down thus:

s.	*d.*
4	6

or thus, 4*ſ*d; and when ſhillings and pence, and parts of a penny, expreſſed thus,

s.	*d.*
4	6 ½

or thus, 4*ſ*6 ½. The latter way by ſome is accounted the neateſt and beſt method to expreſs parts of a penny, or farthings; thus,

¼ a farthing, or one fourth part of what it follows.
½ a halfpeny, or one half of what it follows.
¾ three farthings, or 3-4ths or qrs. of what it follows.

And being thus ſet fraction ways, the under figure ſhews how many parts the quantity before it is divided into, and the upper figure ſhews how many of thoſe under parts the fraction ſtands for; as thus, ½ of an ell, ¾ of a foot, or 9 inches; and the ſame of a ſhilling is 9 pence; of a pound is 15s.

If you are to ſet down 6 yards and half, write thus, 6 ½ yds.

Nineteen hundred three quarters thus, C. 19 ¾

Sixteen pounds and a quarter thus, lb. 16 ¼
or elſe thus, 16C. ¼ 16lb. ¼ 5 feet ½, 14 days ¾. Here the name is put between the whole number and the fraction, which I think is the plainer and better way: For example, 6 ½ hhd. may through ignorance or wilfulneſs, be read 6 half hhd. as well as 6 hhds. and half.

A Table exhibiting at one view the value of any number of Portugal pieces of gold in Englifh pounds and fhills.

POLTUGAL PIECES.

Num. of Pees	at 3 12 0 l. s. d.	at 1 16 0 l. s. d.	at 0 18 0 l. s. d.	at 1 7 0 l. s. d.
1	3 12 0	1 16 0	0 18 0	1 7 0
2	7 4 0	3 12 0	1 16 0	2 14 0
3	10 16 0	5 8 0	2 14 0	4 1 0
4	14 8 0	7 4 0	3 12 0	5 8 0
5	18 0 0	9 0 0	4 10 0	6 15 0
6	21 12 0	10 16 0	5 8 0	8 2 0
7	25 4 0	12 12 0	6 6 0	9 9 0
8	28 16 0	14 8 0	7 4 0	10 16 0
9	32 8 0	16 4 0	8 2 0	12 3 0
10	36 0 0	18 0 0	9 0 0	13 10 0
20	72 0 0	36 0 0	18 0 0	27 0 1
30	108 0 0	54 0 0	27 0 0	40 10 0
40	144 0 0	72 0 0	36 0 0	54 0 0
50	180 0 0	90 0 0	45 0 0	67 10 0
60	216 0 0	108 0 0	54 0 0	81 0 0
70	252 0 0	126 0 0	63 0 0	95 10 0
80	288 0 0	144 0 0	72 0 0	108 0 0
90	324 0 0	162 0 0	81 0 0	121 10 0
100	360 0 0	180 0 0	90 0 0	135 0 0
200	720 0 0	360 0 0	180 0 0	270 0 0
300	1080 0 0	540 0 0	270 0 0	405 0 0
400	1440 0 0	720 0 0	360 0 0	540 0 0
500	1800 0 0	900 0 0	450 0 0	675 0 0
600	2160 0 0	1080 0 0	540 0 0	810 0 0
700	2520 0 0	1260 0 0	630 0 0	945 0 0
800	2880 0 0	1440 0 0	720 0 0	1080 0 0
900	3240 0 0	1620 0 0	810 0 0	1215 0 0
1000	3600 0 0	1800 0 0	900 0 0	1350 0 0
5000	18000 0 0	9000 0 0	4500 0 0	6750 0 0
10000	36000 0 0	18000 0 0	9000 0 0	13500 0 0

A Table for buying or selling any Commodity by the great Hundred, which is 112 Pounds.

d. q.	l. s. d.	d. q.	l. s. d.	d. q	l. s. d.	d. q.	l. s. d.
0 1	0 2 4	1	2 18 4	1	5 14 4	1	8 10 4
2	0 4 8	2	3 0 8	2	5 16 8	2	8 12 8
3	0 7 0	3	3 3 0	3	5 19 0	3	8 15 0
1 0	0 9 4	7 0	3 5 4	13 0	6 1 4	19 0	8 17 4
1	0 11 8	1	3 7 8	1	6 3 8	1	8 19 8
2	0 14 0	2	3 10 0	2	6 6 0	2	9 2 0
3	0 16 4	3	3 12 4	3	6 8 4	3	9 4 4
2 0	0 18 8	8 0	3 14 8	14 0	6 10 8	20 0	9 6 8
1	1 1 0	1	3 17 0	1	6 13 0	1	9 9 0
2	1 3 4	2	3 19 4	2	6 15 4	2	9 11 4
3	1 5 8	3	4 1 8	3	6 17 8	3	9 13 8
3 0	1 8 0	9 0	4 4 0	15 0	7 0 0	21 0	9 16 0
1	1 10 4	1	4 6 4	1	7 2 4	1	9 18 4
2	1 12 8	2	4 8 8	2	7 4 8	2	10 0 8
3	1 15 0	3	4 11 0	3	7 7 0	3	10 3 0
4 0	1 17 4	10 0	4 13 4	16 0	7 9 4	22 0	10 5 4
1	1 19 8	1	4 15 8	1	7 11 8	1	10 7 8
2	2 2 0	2	4 18 0	2	7 14 0	2	10 10 0
3	2 4 4	3	5 0 4	3	7 16 4	3	10 12 4
5 0	2 6 8	11 0	5 2 8	17 0	7 18 8	23 0	10 14 8
1	2 9 0	1	5 5 0	1	8 1 0	1	10 17 0
2	2 11 4	2	5 7 4	2	8 3 4	2	10 19 4
3	2 13 8	3	5 9 8	3	8 5 8	3	11 1 8
6 0	2 16 0	12 0	5 12 0	18 0	8 8 0	24 0	11 4 0

Example.

First, at 5d. 3q. the pound, what is the great hundred? Look in the table for 5d. 3q. in the first column, and against it in the second, you shall find 2l. 13s. 8d. and so much will 112 pound cost. Again, if a hundred weight cost 4l. 8s. 8d. find 4l. 8s. 8d. and against it, in the column towards the left-hand, you will find it 9d. 2q. and so much it is by the pound.

Note, For every farthing that one pound doth cost, reckon two shillings and four-pence, and that is the price of the great hundred.

A

A general Interest Table at 3 ℔ Cent.

Principal l.	Interest. l.	s.	d.	q.	Principal. l.	Interest. l.	s.	d.	q.
1	0	0	0	0	10000	0	16	5	1
2	0	0	0	0	20000	1	12	10	2
3	0	0	0	0	30000	2	9	3	3
4	0	0	0	0	40000	3	5	9	0
5	0	0	0	0	50000	4	2	2	1
6	0	0	0	1	60000	4	18	7	2
7	0	0	0	1	70000	5	15	0	3
8	0	0	0	1	80000	6	11	6	0
9	0	0	0	1	90000	7	7	11	1
10	0	0	0	1	100000	8	4	4	2
20	0	0	0	2	200000	16	8	9	1
30	0	0	0	2	300000	24	13	1	3
40	0	0	0	3	400000	32	17	6	2
50	0	0	1	1	500000	41	1	11	0
60	0	0	1	1	600000	49	6	3	2
70	0	0	1	2	700000	57	10	8	1
80	0	0	1	2	800000	65	15	0	3
90	0	0	1	3	900000	73	19	5	2
100	0	0	2	0	1000000	82	3	10	0
200	0	0	4	0	2000000	164	7	8	0
300	0	0	6	0	3000000	246	11	6	0
400	0	0	8	0	4000000	328	15	4	0
500	0	0	9	3	5000000	410	19	2	0
600	0	0	11	3	6000000	493	3	0	1
700	0	1	1	3	7000000	575	6	10	1
800	0	1	3	3	8000000	657	10	8	1
900	0	1	5	3	9000000	739	14	6	1
1000	0	1	7	3	10000000	821	18	4	1
2000	0	3	3	2	20000000	1643	16	8	2
3000	0	4	11	1	30000000	2465	15	0	3
4000	0	6	7	0	40000000	3287	13	5	0
5000	0	8	2	3	50000000	4109	11	9	1
6000	0	9	10	1	60000000	4931	10	1	2
7000	0	11	6	0	70000000	5753	8	6	0
8000	0	13	1	3	80000000	6575	6	10	2
9000	0	14	9	2	90000000	7397	5	2	3

A General Intereſt Table at 3 ½ ℔ Cent.

Principal l.	Intereſt. l.	s.	d.	q.	Principal. l.	Intereſt. l.	s.	d.	q.
1	0	0	0	0	10000	0	19	2	1
2	0	0	0	0	20000	1	18	4	1
3	0	0	0	0	30000	2	17	6	2
4	0	0	0	0	40000	3	16	8	2
5	0	0	0	0	50000	4	15	10	3
6	0	0	0	1	60000	5	15	0	3
7	0	0	0	1	70000	6	14	3	0
8	0	0	0	1	80000	7	13	5	0
9	0	0	0	1	90000	8	12	7	1
10	0	0	0	1	100000	9	11	9	2
20	0	0	0	2	200000	19	3	6	3
30	0	0	0	3	300000	28	15	4	0
40	0	0	1	0	400000	38	7	1	2
50	0	0	1	1	500000	47	18	10	3
60	0	0	1	2	600000	57	10	8	1
70	0	0	1	2	700000	67	2	5	2
80	0	0	1	3	800000	76	14	3	0
90	0	0	2	0	900000	86	6	0	1
100	0	0	2	1	1000000	95	17	9	3
200	0	0	4	2	2000000	191	15	7	2
300	0	0	7	0	3000000	287	13	5	0
400	0	0	9	1	4000000	383	11	2	3
500	0	0	11	2	5000000	479	9	0	2
600	0	1	1	3	6000000	575	6	10	1
700	0	1	4	0	7000000	671	4	8	0
800	0	1	6	2	8000000	767	2	5	2
900	0	1	8	3	9000000	863	0	3	1
1000	0	1	11	0	10000000	958	18	1	0
2000	0	3	10	0	20000000	1917	16	2	0
3000	0	5	9	0	30000000	2876	14	3	0
4000	0	7	8	0	40000000	3835	12	4	0
5000	0	9	7	0	50000000	4794	10	5	0
6000	0	11	6	0	60000000	5753	8	6	0
7000	0	13	5	0	70000000	6712	6	7	0
8000	0	15	4	0	80000000	7671	4	8	0
9000	0	17	3	0	90000000	8630	2	8	3

A

A general Intereſt Table at 4 ℔ Cent.

Principal. l.	Intereſt. l.	s.	d.	q.	Principal. l.	Intereſt. l.	s.	d.	q.
1	0	0	0	0	10000	1	1	11	0
2	0	0	0	0	20000	2	3	10	0
3	0	0	0	0	30000	3	5	9	0
4	0	0	0	0	40000	4	7	8	0
5	0	0	0	1	50000	5	9	7	0
6	0	0	0	1	60000	6	11	6	0
7	0	0	0	1	70000	7	13	5	0
8	0	0	0	1	80000	8	15	4	0
9	0	0	0	1	90000	9	17	3	0
10	0	0	0	1	100000	10	19	2	1
20	0	0	0	2	200000	21	18	4	1
30	0	0	0	3	300000	32	17	6	2
40	0	0	1	0	400000	43	16	8	2
50	0	0	1	1	500000	54	15	10	3
60	0	0	1	2	600000	65	15	0	3
70	0	0	1	3	700000	76	14	3	0
80	0	0	2	0	800000	87	13	5	0
90	0	0	2	1	900000	98	12	7	1
100	0	0	2	3	1000000	109	11	9	1
200	0	0	5	1	2000000	219	3	6	3
300	0	0	8	0	3000000	328	15	4	0
400	0	0	10	2	4000000	438	7	1	2
500	0	1	1	1	5000000	547	18	10	3
600	0	1	3	3	6000000	657	10	8	1
700	0	1	6	2	7000000	767	2	5	2
800	0	1	9	0	8000000	876	14	3	0
900	0	1	11	3	9000000	986	6	0	1
1000	0	2	2	1	10000000	1095	17	9	3
2000	0	4	4	2	20000000	2191	15	7	1
3000	0	6	7	0	30000000	3287	13	5	0
4000	0	8	9	1	40000000	4383	11	2	3
5000	0	10	11	2	50000000	5479	9	0	2
6000	0	13	1	3	60000000	6575	6	10	1
7000	0	15	4	0	70000000	7671	4	7	3
8000	0	17	6	2	80000000	8767	2	5	2
9000	0	19	8	3	90000000	9863	0	3	1
10000	1	1	11	0	100000000	10958	18	1	0

A general Intereſt Table at 5 ℔ Cent.

Principal. l.	Intereſt. l.	s.	d.	q.	Principal. l.	Intereſt. l.	s.	d.	q.
1	0	0	0	0	10000	1	7	4	3
2	0	0	0	0	20000	2	14	9	2
3	0	0	0	0	30000	4	2	2	1
4	0	0	0	0	40000	5	9	7	0
5	0	0	0	1	50000	6	16	11	3
6	0	0	0	1	60000	8	4	4	2
7	0	0	0	1	70000	9	11	9	1
8	0	0	0	1	80000	10	19	2	1
9	0	0	0	1	90000	12	6	7	0
10	0	0	0	1	100000	13	13	11	3
20	0	0	0	3	200000	27	7	11	1
30	0	0	1	0	300000	41	1	11	0
40	0	0	1	1	400000	54	15	10	3
50	0	0	1	3	500000	68	9	10	1
60	0	0	2	0	600000	82	3	10	0
70	0	0	2	1	700000	95	17	9	3
80	0	0	2	3	800000	109	11	9	1
90	0	0	3	0	900000	123	5	9	0
100	0	0	3	1	1000000	136	19	8	3
200	0	0	6	2	2000000	273	19	5	2
300	0	0	9	3	3000000	410	19	2	1
400	0	1	1	0	4000000	547	18	10	3
500	0	1	4	2	5000000	684	18	7	2
600	0	1	7	3	6000000	821	18	4	1
700	0	1	11	0	7000000	958	18	1	0
800	0	2	2	1	8000000	1095	17	9	3
900	0	2	5	2	9000000	1232	17	6	2
1000	0	2	8	3	10000000	1369	17	3	0
2000	0	5	5	3	20000000	2739	14	6	1
3000	0	8	2	3	30000000	4109	11	9	1
4000	0	10	11	2	40000000	5479	9	0	2
5000	0	13	8	2	50000000	6849	6	3	2
6000	0	16	5	1	60000000	8219	3	6	3
7000	0	19	2	1	70000000	9589	0	9	3
8000	1	1	11	0	80000000	10958	18	1	0
9000	1	4	8	0	90000000	12328	15	4	0
10000	1	7	4	3	100000000	13698	12	7	1

Use of the foregoing INTEREST TABLES.

These Tables will, with a very little trouble, answer the purposes of the best tables of Interest contained in entire volumes on that subject alone, of higher price than this whole book. The Rates of Interest are expressed at the head of each table, viz. 3, 3 ½, 4 and 5 ℔ Cent. which Rates suit both the present Interest of the public Funds, and private Obligations of MORTGAGES, BONDS, PROMISSORY NOTES, BILLS of EXCHANGE, or any other Security or Deposit on which any of the Rates of Interest abovementioned are chargeable, or allowed by law, custom or agreement, between the Borrower and the Lender.

RULE.

Multiply the Principal by the number of Days, and the product arising collect from the Table of any of the Rates of Interest, as if it was the Principal itself, and the Interest of the sum proposed is obtained for that time, care being taken to use that Table suited to the Interest of the Security. These Examples will be sufficient.

EXAMPLES.

What is the Interest due on a private Bond for 150l. for 106 Days at 5 ℔ Cent? As ℔ Rule:

150 l. Principal.
106 Days.

900
150

15900 Product, or new Principal, which

collected from the Table of 5 ℔ Cent. will be thus:

l.		l.	s.	d.	q.	
10,000	——	1	7	4	3	
5,000	——	0	13	8	2	
900	——	0	2	5	1	
15,900		2	3	6	2	Interest.

When

When there are ſhillings and pence in the principal, the aliquot parts of the number of days muſt be added to the product of the number of days into the entire pounds in the principal; or reduce the ſhillings and pence into a decimal, which may be done mentally, and multiply the mixt number by the number of days, and either way collect the product from the proper table, and the intereſt is obtained.

EXAMPLE.

What is the intereſt of 75l. 15s. for 50 days at 5 ℔ cent.

	l.	s.	
	75	15	principal.
	50		days.
	3750		
½ for 10s.	25		
½ for 5s.	12	6	
	3787	.6	

which collect from the table of 5 per cent. and you have

	l.	s.	d.	q.	
3000	0	8	2	3	
700	0	1	11	0	
80	0	0	2	3	
7	0	0	0	1	
3787	0	10	4	3	intereſt.

	l.
The ſame by decimals	75,75
,75 being the decimal for 15s.	50
	3787.50

It is needleſs to collect theſe numbers from the table, as they are the ſame with them above by aliquot parts; and at all times, if there are pence in the principal, they may be rejected as not neceſſary to be brought into the computation.

Of

Of the GLOBES,

Shewing the Nature and Use of Astronomy and Geography.

BY the globes are here meant two artificial spherical bodies, whose convex part is supported, to give a true and exact representation of the earth and heavens, as visible by observation, and therefore are called the celestial and terrestrial globes.

The celestial globe has the images of the several constellations and stars drawn upon its surface, with their magnitudes expressed, and their just and due position, &c. represented according to their proper situation in the heavens.

The terrestrial or artificial terraqueous globe has the whole surface of the earth and sea delineated on its convexity, in their natural form, order and situation. It is made spherical, to give a true resemblance in figure between it and the natural globe of the earth, which in this case, may be very well taken as such.

For the better understanding these globes, and distinguishing all their exterior parts, with the various operations to be performed by them, they are to be conceived, not barely as spherical bodies, but as such surrounded with many imaginary circumferences of great circles, and their parallels, or small circles; and also having several remarkable points and right-lines.

Of the Circles of the Sphere, and their Poles.

By great circles are meant those that divide the globe into two equal parts;

And by small circles, those that divide it into two unequal parts; and are generally denominated by their being parallel to some great circle.

Every great circle has its poles and axis.

A point on the surface of the globe, every-where equally distant from the circumference of the great circle, is called the pole of that circle, and a right line passing through the poles of any circle, is called an axis, and is therefore perpendicular to the plane of that circle.

The axis of the world, or of the natural globe, is an imaginary right line passing through its centre; and upon which it is supposed to turn round. And in the artificial globe, it is not an imaginary line, but that on which the globe really turns.

The

The two extream points of the axis of the world, are called the poles of the world; one of which is termed the north or arctic, and the other the south or antarctic pole.

The circles common to both globes are these eight,

Four great circles, viz. { Horizon, Equator, Meridian, Ecliptic.

Four lesser circles, { Two tropics, Two polar circles.

But several other circles are drawn, and innumerable may be conceived.

Of the Horizon.

That great circle 90 deg. distant from the zenith and nadir, which divides the globe into two parts, an upper and lower, in respect to us, is called the horizon, and is of two kinds, viz. rational and sensible.

The rational, true or astronomic horizon, divides the globe into two equal parts, called the upper and lower hemispheres.

Its poles are called the zenith, which is the point directly over our heads; and nadir, which is the point under our feet, or diametrically opposite the zenith.

Astronomic calculations of the rising or setting of the sun, moon and stars, respects the rational horizon, and by this circle the days and night are determined; for while the sun is above, it is day, when under, night.

The true horizon is represented on the globe, by the upper plane of the broad wooden frame thereof, upon which are inscribed several circles. As

The first or innermost, has the number of the degrees of the twelve signs of the zodiac, 30 degrees to each sign.

The second, has the names, marks and figures of those signs.

The third, has the calendar with the days of the month.

The fourth or outermost circle, has the points of the nautical compass.

But some globes have the kalendar on the outside.

The

The ſenſible or apparent horizon is the extremity of the earth, that bounds our ſight, which for the moſt part is uneven; and at ſea is of greater or leſſer extent, as the eye is higher or lower.

Theſe two horizons, when produced to the heavens, may, without any ſenſible errors, be ſuppoſed to coincide, the diſtance between them, or the earth's ſemidiameter, vaniſhing when compared with ſuch diſtance.

Since the earth moves round its axis, from weſt to eaſt, it is plain, a ſpectator upon its ſurface, together with his horizon, muſt move the ſame way; conſequently theſe celeſtial bodies towards the eaſt, that were before inconſpicuous, will become viſible, the horizon being depreſſed below them; and theſe towards the weſt, that were before in view, will become inviſible, the horizon being elevated above them. And hence ariſes the apparent motion of all the heavenly bodies, by which they appear to deſcribe circles round the poles, parallel to the celeſtial equator, which are greater or leſs, according as they are more or leſs diſtant from the neareſt poles.

Though the riſing and ſetting of the ſtars reſpect the rational horizon, yet by reaſon of their vaſt diſtance, it holds true of the ſenſible, which is more than 4000 miles above it.

Of Circles parallel to the Horizon.

Circles parallel to the horizon, paſſing through each point of a great circle drawn through the zenith and dadir, are called almicanthers, or parallels of altitude.

That at 18 deg. below the horizon, is called the crepuſculum circle; for when the ſun is about 18 degrees beneath the horizon, the morning twilight begins, and the evening twilight ends.

Of the Ecliptic and Zodiac.

That great circle, which the ſun is ſuppoſed to deſcribe in its proper motion, is called the ecliptic, or the ſun's orbit.

For the ſun is here ſuppoſed to have two motions:

A diurnal motion from eaſt to weſt about the poles of the world, in circles parallel to the equinoctial in 24 hours.

A proper motion from weſt, obliquely to eaſt, in the ecliptic, in one natural or tropical year, *i. e.* in 365 days 5 hours, 49 minutes, 4 ſeconds and $\frac{1}{2}$.

The better to diſtinguiſh theſe motions, conceive a worm creeping ſlowly in the ecliptic, while the globe is turned once round the other way; hereby the ſun may be ſaid to deſcribe each day a parallel to the equinoctial (tho' properly it is a ſpiral line) and yet is never out of the ecliptic.

The planets alſo, beſides a diurnal motion from eaſt to weſt, have a proper motion in their orbits from weſt to eaſt.

		years.	days.	hours.
Saturn	Finiſhes its courſe in	30	0	0
Jupiter		12	0	0
Mars		1	315	0
Venus		0	224	18
Mercury		0	88	0
Moon		0	27	8

The orbit of each planet cuts the ecliptic in two oppoſite points called nodes; and the orbit of Venus is ſo oblique to the ecliptic, that ſhe may be about 8 or 9 degrees diſtant from it.

Hence the zone, including the ways of the planets, or the zodiac, is reckoned to be about 8 degrees broad on each ſide of the ecliptic.

The ecliptic is divided into 12 equal parts called ſigns, of 30 degrees each, whoſe names and caracters are theſe, viz.

♈	♉	♊	♋	♌	♍
Aries,	*Taurus*,	*Gemini*,	*Cancer*,	*Leo*,	*Virgo*,
♎	♏	♐	♑	♒	♓
Libra,	*Scorpio*,	*Sagittarius*,	*Capricorn*,	*Aquarius*,	*Piſces*.

The equinoctial cuts the ecliptic on the oppoſite points of Aries and Libra (their planes making an angle of 23 degrees 29 minutes) and theſe points are called the equinoctial points.

When the ſun is at the equinoxes, the days alter much; for here the ecliptic is moſt oblique to the equator.

The tropics touch the ecliptic in the oppoſite points of Cancer and Capricorn, which therefore are called the ſolſticial points: When the ſun is at the ſolſtices, the days alter

alter but little, for there the ecliptic is almost parallel to the equator.

The fixed stars have likewise a diurnal motion from east to west, and a proper motion from west to east, in circles parallel to the ecliptic; and therefore equi distant from its poles, about 50 seconds in the year; and in about 25920 years, will make en intire revolution, as is easily computed, by compairing antient observations with those made of late: And this period is called the platonic year.

From this motion it is that the constellations of the zodiac, have left the signs to which they gave name.

Of the Equator or Equinoctial.

The great circle of the globe, whose poles are those of the world, is called the equator or equinoctial.

It divides the globe into two equal parts, called the northern and southern hemispheres.

The circumference of this great circle passes through the east and west points of the horizon; therefore the stars which are under the equinoctial, always rise due east and set due west: And the sun, when 'tis said to come to this circle, makes the days and nights every where equal; for then only it is said to rise and set due east and west.

The equinoctial, equator or what seamen call the line, is supposed to be divided into 360 equal parts, called degrees. And a natural day is measured by a revolution of the equinoctial, that is 360 degrees revolve in 24 hours, therefore,

$$\left.\begin{array}{r} \frac{360}{24}=15 \text{ degrees} \\ 1 \text{ degree} \\ 15 \text{ mins.} \\ 1 \text{ min.} \end{array}\right\} \text{of the equator in} \left\{\begin{array}{l} 1 \text{ hour} \\ 4 \text{ min.} \\ 1 \text{ min.} \\ 4 \text{ sec.} \end{array}\right\} \text{of time.}$$

Which in astronomy is to be noted for the reducing of degrees, minutes, &c. into time, and the contrary.

Of Circles parallel to the Equator.

Circles parallel to the equator, passing thro' each point of a great circle drawn through the poles of the world, are with respect to the earth, called parallels of latitude; But

with reſpect to the ſtars and planets they are called parallels of declination; and the extream parallels of the ſun's declination, or thoſe at 23 deg. and 29 min. diſtant from the equator, are called the tropics of cancer and capricorn.

Thoſe parallels to the equator, at 23 deg. and 29 min. diſtant from its poles, northern or ſouthern, are called polar circles, *viz.* arctic and antarctic.

Of the Meridian.

A great circle paſſing through the poles of the world, the zenith and nadir, is called a meridian; which therefore cuts the equinoctial at right angles, and divides the globe into two equal parts, called the eaſtern and weſtern hemiſpheres, and its poles are the eaſt and weſt points of the horizon. Meridians are alſo called circles of longitude on the terreſtrial globe, and ſometimes circles of declination.

But on the celeſtial globe thoſe are circles of longitude which paſs through the poles of the ecliptic, and through each degree thereof.

Theſe two meridians which paſs, the one through the beginning of Aries and Libra, the other through the beginning of Cancer and Capricorn, are called the equinoctial and ſolſticial colures. Which therefore cut one another at right angles, and divide the ecliptic into four equal parts called cardinal points.

Thoſe meridians which are drawn through every 15th degree of the equinoctial, are called hour circles.

The firſt meridian is that from whence the longitude of places is reckoned. Ptolemy placed the firſt meridian one degree beyond the Fortunate or Canary iſlands. After the diſcovery of America it was fixed in St. Nicholas, one of the Cape de Verd iſlands: Hondijus placed it at St. Jago: Mercator at Corva, one of the weſtern iſles; the Dutch reckon from the Meridian of Teneriff: The French from a meridian paſſing over the middle of Fero, the weſternmoſt of all the Canary Iſles.

But it is abundantly ſufficient for all purpoſes, if the diſtance or difference of meridians, *i. e.* the arc of the equator intercepted between them, be known, which will or ſhould be found the ſame in all authors; and therefore every aſtronomer, calculator of tables, and geographer, make

makes his own meridian the first; and for that reason, we reckon the longitude from the meridian of London.

Of vertical or azimuthal Circles.

Great circles passing through the vertex or zenith, nadir and the several points of the horizon, are called vertical or azimuthal circles.

That which passes through the east and west points of the horizon, is called the prime vertical: And the vertical circle which passes through the poles of the ecliptic, and consequently cuts the ecliptic at right angles in the nonagesim degree, or in the 90th degree from the horizon, is called the Nonagesim circle.

Explication of some Words relating to the Sphere.

1. The altitude of any point in the heavens, is an arc of a vertical circle, intercepted between that point and the horizon.

2. The declination of any point in the heavens, is an arc of the meridian, intercepted between that point and the equinoctial.

3. The right ascension of any point, is an arc of the equinoctial, intercepted between the beginning of Aries and the meridian, passing through that point; or is the angle made by the equinoctial colure and the meridian of that point.

4. The oblique ascension, or descension, is an arc of the equinoctial, intercepted between the beginning of Aries, and that part of the equinoctial which rises or sets with that point in an oblique sphere.

5. The ascensional difference, is the difference between the right and oblique ascension or descension; or that arc of the equator intercepted between the points of right and oblique ascension; or it is the difference between a semidiurnal arc, and 90 degrees, or 6 hours; therefore if the sun have North or South declination, its accensional difference is the time of its rising before or after the hour of six.

6. The azimuth is an arc of the horizon, intercepted between a vertical circle passing thro' any point above the horizon and the meridian; or is the angle of the zenith,

made by a vertical circle passing through the given point and the meridian.

The amplitude, is an arc of the horizon intercepted between any point at its rising or setting, and the east or west points of the horizon; or is the angle made by a vertical circle passing through any point at its rising or setting, and the prime vertical.

8. The longitude of any point in the heavens, is an arc of the ecliptic intercepted between a circle of longitude passing through that point and the equinoctial point Aries.

By the place of a star, is meant, that point of the ecliptic, over which runs a circle of longitude passing through that star. The longitude of the sun, is an arc of the ecliptic intercepted between the sun, and the equinoctial point Aries. By the place of the sun is meant that sign, degree or minute, &c. of the ecliptic, in which the sun is at any time.

9. The latitude of any point in the heavens, is an arc of a circle of longitude passing through that point, intercepted between it and the ecliptic.

Of the poetical Rising and Setting of the Stars.

That star which rises or sets when the sun rises, is said to rise and set cosmically.

And that star which rises or sets when the sun sets, is said to rise or set acronically.

A star is said to rise heliacally, when first it emerges out of the sun's beams, which hid it before.

And a star is said to set heliacally, when it is first immersed or hid in the sun's beams.

The fixed stars, as also Saturn, Jupiter and Mars, rise heliacally in the morning: but the moon rises heliacally in the evening; for the sun is swifter than the superior planets, but slower than the moon.

The depression of the sun under the horizon, when a star rises or sets heliacally, is called the arc of vision; and according to the antients, this arc for stars of the 1st, 2d, 3d, 4th, 5th, &c. magnitudes, is 12°, 13°, 14°, 15°, 16°, 17°, and at 18°, depression, all the stars appear: but it is known, that a star may be seen, when the sun has a much less depression than assigned by the antients. Jupiter and Venus, when they are brightest, may be seen by day.

Of

Of the various Poſitions of the Globe or Sphere.

I. Of the right poſition.

That poſition of the ſphere where the equator is perpendicular to the horizon, is called the right poſition.

1. Here both poles are in the horizon.

2. All the ſtars do riſe and ſet.

3. All the nocturnal arcs are equal to their diurnal, and therefore a perpetual equality of day and night.

4. The twilight is here ſhorteſt; becauſe the ſun aſcends right to the horizon.

II. Of the oblique poſition.

That poſition of the ſphere, when the equator is oblique to the horizon, is called the oblique poſition.

1. Here when the ſun is in the equator, it makes the days and nights every where equal.

2. The greater the elevation of the pole is, the longer the ſummer days are, and the ſhorter the winter: So that under the polar circles, at the ſolſtices, it is all day or all night.

3. The twilight is ſo much the longer as the pole is higher; ſo that in the North of Scotland, about the ſummer ſolſtice, the twilight is ſufficient to read by at midnight.

III. Of the parallel poſition.

That poſition of the ſphere, where the equator is parallel to the horizon, is called the parallel poſition.

1. Here the poles of the equator are in the zenith and nadir.

2. The ſtars and planets in their diurnal motion, deſcribe circumferences pa.. o the horizon.

3. The ſun is half a year above, and half a year under the horizon: for the horizon biſects the ecliptic.

4. Here the ſame hemiſphere of fixed ſtars is always above the horizon; and each planet during half its period viz. Saturn 15 years, Jupiter 6, Mars 1, &c.

But the polar inhabitants (if any) are not in darkneſs all the time of the ſun's abſence, for the moon, while brighteſt, viz. from the firſt quarter to the laſt, does not ſet.

And the twilight lasts while the sun has less than 18 degrees declination; so that those under the North-pole (for instance) are without twilight, only from the beginning of November till the middle of January.

Also because of the refraction in such thick air, the sun appears sooner, and goes off later by several days than else it would, as has been found by experience.

The Division of the Earth into Zones.

The two tropics and the two polar circles, divide the surface of the earth into five bands, called the terrestrial zones, which have their names from the quality of the temperature which their situation is subject to, viz.

Two temperate zones, comprehended betwixt the tropics and the polar circles.

Two frigid zones, comprehended within the polar circles.

One torrid zone, comprehended between the two tropics.

The Division of the Earth, by the Diversity of Shadows.

The inhabitants of the frigid zone are called Periscians; because in the longest day their shadow goes round about them.

The inhabitants of the torrid zone are called Amphiscians; because their noon shadow is cast different ways, according as the sun is to be northward or southward of their zenith. But when the sun is in their zenith, they are called Asciens.

The inhabitants of the temperate zone are called Heteroscians, because their noon shadow is cast but one way.

But those that live under the tropics, are called Asciens Heteroscians.

The Division of the Earth by Situation.

Those who live under the same points of equal and contrary parallels, are called Antœciens: Their seasons of the year are contrary; the days of the one are equal to the nights of the other; the hour of the day and night is the same: and only when the sun is in the equinoctial, it rises with the one when it rises with the other.

Those

Thoſe who live under oppoſite points of the ſame parallel, are called Perioeciens; they have the ſame ſeaſons of the year, the ſame length of days and nights. The one's noon is the other's midnight: and only when the ſun is in the equinoctial, it riſes with the one, when it ſets with the other.

Thoſe who live under oppoſite points of equal and contrary parallels, are called Antipodes: Theſe have contrary times of the year and day; the one's longeſt day or night, is the other's ſhorteſt. The ſun always riſes with the one, when it ſets with the other.

The Diviſion of the Earth by Longitude and Latitude.

That the different places on the earth might be the better diſtinguiſhed, their ſituation may be compared, either

1. By how much any place is to the eaſtward or weſtward of ſome given meridian, reckoning on the equator; and the diſtance is called the longitude of that place.

2. By how much any place is to the northward or ſouthward of the equator, reckoning on the meridian; and the diſtance is called the latitude of that place; therefore

The longitude of any point on the earth, is an arc of the equator, intercepted between a meridian paſſing through that point and the firſt meridian.

The latitude of any point on the earth, is an arc of a meridian, paſſing through that point, and intercepted between it and the equator.

The Diviſion of the Earth by Climates.

A tract of the ſurface of the earth, included between two parallels to the equator, is ſuch, that the longeſt day of the leſſer parallel, exceeds that of the greater by half an hour, is called a climate.

Theſe climates are narrower the farther they are from the equator; therefore, ſuppoſing the equator the beginning of the firſt climate, the polar circle will be the end of the 24th climate; for afterwards the longeſt day increaſes not by half hours, but by days and months. The following table of the climates ſhews the length of the longeſt days, and the latitude at the end of each climate, together with the breadth thereof; ſo that having the climate given

given, the latitude is found; or having the latitude given, the climate and longeſt day are found.

A Table, *ſhewing the Latitude of thoſe Places, where the longeſt Day makes entire Months.*

Length of days. Months.	Latitudes. Deg. Min.
1	67—21
2	69—48
3	73—37
4	78—30
5	84—05
6	90—00

The TABLE *of the* CLIMATES.

Climate.	Length of days. Hours.	Latitude. Deg. Min.	Breadth. Deg. Min.
1	12½	8—34	8—34
2	13	16—43	7—50
3	13½	23—11	7—03
4	14	30—47	6—09
5	14½	36—30	5—17
6	15	41—22	4—30
7	15½	44—29	3—48
8	16	49—01	3—13
9	16½	51—58	2—44
10	17	54—29	2—17
11	17½	56—37	2—00
12	18	58—26	1—40
13	18½	59—59	1—26
14	19	61—18	1—13
15	19½	62—25	1—01
16	20	63—22	0—52
17	20½	64—06	0—44
18	21	64—46	0—36
19	21½	65—21	0—29
20	22	65—47	0—22
21	22½	66—06	0—17
22	23	66—20	0—11
23	23½	66—28	0—04
24	24	66—30	0—01

The

The Diviſion of the Earth into Parts, right and left.

For the underſtanding of authors, wherein any mention is made of the right and left parts of the world, ſince ſome call the eaſt the right-hand parts, ſome the weſt, ſome the north, and others the ſouth, 'tis to be noted, that,

The geographers who look to the north, reckon the eaſt the right, and the weſt the left-hand part of the world.

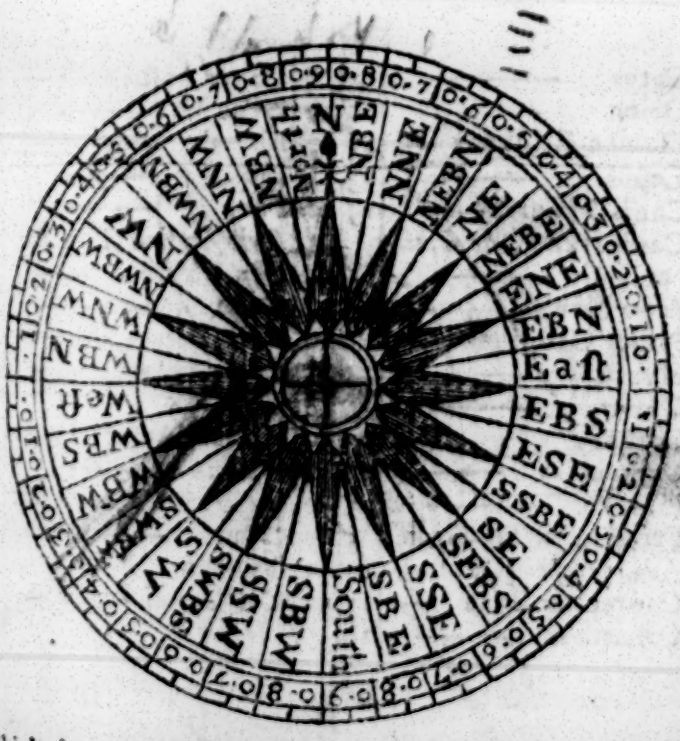
The northen aſtronomers regard the ſouth, and therefore reckon the weſt the right, and the eaſt the left-hand part of the world.

The divines who regard the eaſt, have the ſouth to the right, and the north to the left-hand.

The poets who regard the weſt, reckon the north the right, and the ſouth the left-hand part of the world.

But for the clearer underſtanding the points, I have here given you

A PLAN *of the* COMPASS.



Which is a repreſentation of the horizon on a circular piece of paper called a card, which being properly fixed to

to a piece of steel called the needle, is so placed as to turn freely round a pin that supports it, and will shew the position of the meridian, and other points.

Note, The letters SBE, SSE, SEBS, are to be read, South by East, South South East, and South East by South.

Of the Constellations.

As geographers, for the readier distinction of places, divide the Surface of the earth into kingdoms and provinces, so likewise astronomers, that they might the better know the fixed stars, and give them names, have divided them into constellations or asterisms, as in the following tables:

The Southern Constellations are 32, *viz.*

		Stars			Stars
1	Cetus	21	18	Pisces Austrinus	13
2	Orion	62	19	Grus	13
3	Flumen Eridanus	42	20	Phœnix	15
4	Lepus	13	21	Indus	12
5	Canis Major	15	22	Pavo	25
6	Canis Minor, or Canicula	5	23	Avis Indica Touchan	11
7	Argo Navis	68	24	Apus Musca	4
8	Rober Carolinum	11	25	Chamelion	10
9	Hydra	24	26	Triangulum Australi	5
10	Crater	8	27	Pisces volans	7
11	Corvus	7	28	Dorado	
12	Centaurius	40	29	Apous Anser Americanus	10
13	Lupus	25	30	Hydrus Serpens Australina	21
14	Crosero, or the crosier	5	31	Toucan	8
15	Ara, or the Altar	10	32	Cor Caroli Regis	1
16	Corona Austrina	17			
17	Columbus	10			

In all 543

1342

The

The Northern Conſtellations are 23, *viz.*

	Stars		Stars
1 Urſa Major	20	12 Auriga	27
2 Urſa Minor	55	13 Serpentarius	38
3 Draca	32	14 Serpens	13
4 Cepheus	11	15 Sagitta	8
5 Bootes	28	16 Aquilla	12
6 Corona Borealis	8	17 Antionius	7
7 Hercules	28	18 Delphinus	10
8 Lyra	11	19 Equiniculus	4
9 Olon aut Cygnus	27	20 Pegaſus	23
10 Coſſiopea	45	21 Andromede	23
11 Perſeus and Caput Meduſa	33	22 Triangulum	4
		23 Coma Berenices	11
		In all	478

The Zodiac Conſtellations are 12, *viz.*

	Stars		Stars
1 Aries	21	7 Libra	18
2 Taurus	49	8 Scorpion	26
3 Gemini	20	9 Sagitarius	28
4 Cancer	15	10 Capricornus	29
5 Leo	40	11 Aquarius	41
6 Virgo	39	12 Piſces	36
		In all	371

The ſouthern conſtellation called Cor Caroli Regis, was added by Sir Charles Scarborough, it being one ſtar in a crowned heart, lying between Urſa Major and Coma Berenices; ſo that the conſtellations are in all 67, containing 1392 ſtars, beſides many that are unformed, which are diſtinguiſhed into ſix degrees of magnitude or bigneſs. The biggeſt and brighteſt are called ſtars of the firſt magnitude. Thoſe next inferior in bigneſs and brightneſs, are ſtars of the ſecond magnitude, &c. and ſo on unto ſtars of the ſixth magnitude.

Of

Of the Natural and Political Diviſions of the Earth.

THE terraqueous globe, or globe of the earth and water is divided, by nature, into continents, iſlands, peninſulas, iſthmus's, mountains, promontories or capes, hills and valies, oceans, ſeas, lakes, gulphs or bays, ſtraits, ports or harbours and river's, rocks, ſhelves, banks, marſhes and bogs.

A continent, called ſometimes the main land, is a large tract of land containing ſeveral contiguous countries, empires, kingdoms or ſtates.

An iſland, is a piece of land wholly ſurrounded by the ocean, ſea, or water, and ſo divided from the continent.

A peninſula, (that is to ſay, *almoſt an iſland*) is a piece of land encompaſſed by water, except on one ſide, where it is joined to the continent or other land.

An iſthmus, is that neck or narrow piece of land that joins a peninſula to the continent.

A mountain, is a part of the earth which is conſiderably higher or more elevated than other lands near it.

A promontary, is a mountain running out into the ſea, the extremity of which is called a Cape, or Head-land.

A hill, is a leſſer kind of mountain; and a valley is that land which is ſituate at the bottom of a mountain or hill, or between two or more ſuch.

The ocean, is a vaſt body of ſalt water which ſeparates ſome of the continents, and waſhes their borders or ſhores.

A ſea, is a branch of the ocean flowing between ſome parts of the continents, or ſeparating iſlands from them.

A lake, is a body of waters every where ſurrounded by the land.

A gulph or bay, is a part of the ocean or ſea contained between two ſhores, and is encompaſſed by the land except on one ſide, where it communicates with the other waters.

A ſtrait, is a narrow paſſage whereby ſeas, gulphs, and bays communicate with the ocean, or with one another.

A port or harbour, is a part of the ocean or ſea ſo incloſed by the land, that ſhips may ride in ſafety therein.

A river, is a running water deſcending in a narrow channel from the mountains, or other high lands, and emptying itſelf into ſome ocean, ſea or lake.

Rocks

Rocks, are great ſtones, ſhelves and banks, are eminences conſiſting of ſtones, ſands, or other matter which obſtruct the paſſage of ſhips at ſea, and often prove fatal to thoſe who do not keep clear of them.

Marſhes, are lands lying low, which are liable to be overflowed by the ſea or rivers; and bogs are mixtures of land and water, over or among which it is dangerous to attempt a paſſage.

By the political diviſions of the earth, are meant thoſe eſtabliſhed by men, as empires, kingdoms, provinces, countries, monarchies, republics, principalities, dukedoms, dioceſſes, pariſhes, cities, towns, villages, &c. But as it is more material for our Britiſh reader to be acquainted with his own country, than entertained with an imperfect account of others, I ſhall begin with giving a deſcription of the market-towns through England and Wales.

Of ENGLAND.

THE kingdom of England lies on the ſouth of Scotland, and north of France, from which it is divided by the channel, of a triangular form, incompaſſed on three ſides with ſea. In length from north to ſouth, about 360 miles, and in breadth from eaſt to Weſt about 300, containing about 27 millions of acres.

The inhabitants are moſtly of the reformed religion, taught here in its purity; their language is a branch of the Teutonic, chiefly compoſed of old Saxon, Latin, and French. Their chief commodities are corn, cattle, tin, copper, lead, iron, timber, coals, abundance of wool, ſtuffs, linen, hides, tallow, butter, cheeſe, beer, &c.

The rivers of principal note are, 1. Thames, 2. Severn, 3. Ouze, 4. the Medway, 5. the Trent, 6. the Humber, which laſt is rather an arm of the ſea, into which ſeveral river empty themſelves.

Its mountains of greateſt account are three, to wit, Ingleborough, Pendle, and Pennegent.

Of Archbiſhopricks 2. Biſhorricks 20. And univerſities 2, namely, Oxford and Cambridge.

An Account of the ſeveral Counties of *England* and *Wales*, with their Produce, Market-Towns, and Market-Days, *&c.* and Days on which the Fairs are held.

Note, *m.* ſtands for *Monday*, *tu.* for *Tueſday*, *w.* for *Wedneſday*, *th.* for *Thurſday*, *f.* for *Friday*, *ſ.* for *Saturday*, being the Market-days. The days on which the Fairs are held, are diſtinguiſhed by being in Roman Characters, and the Diſtance of Miles from LONDON is between ( ).

BERKSHIRE

IS ſuppoſed to contain about 527,000 acres, is 120 miles in circumference, hath plenty of corn, cattle, wool and wood, (eſpecially oak) and is accommodated with water carriage, by the very fine rivers of Thames and Kennet,

And hath theſe Market Towns and Fairs, viz.

Reading, the ſhire-town, market-day on *Saturday*. Fair-days, Feb 1, May 1, July 25, Sept. 21 (40) miles from LONDON.

Windſor, *ſ.* Eaſter tu. June 5, October 13 (23)

Wallingford, *f.* Tueſday before Eaſter, June 24, Sept. 29, December 17 (46)

Maidenhead, *w.* Whitſun wed Sep. 29, Nov. 30 (27)

Hungerford, *w.* Auguſt 21 (64)

Newberry, *th.* Holy thurſ. July 5, Sept. 3, S. Sim. and Jude, October 28 (56)

Farrington, *tu* Feb. 2, Whit. tu. Oct. 18 (68)

Wantage, *ſ.* 1ſt. Sat. in March, July 18, Sep. 17 (59)

Eaſt-Iſley, *w.* Auguſt 6 (47)

Abingdon, *m.* 1ſt Monday in Lent, June 20, Sep. 19, Dec. 11 (55)

Oakingham, *tu.* Thurſday before Shrovetide, June 11, Nov. 2 (33)

Lamborne, *th.* May 12. Oct. 2, Dec. 4 (57)

BUCKINGHAMSHIRE.

An inland county, contains about 441,000 acres, is 138 miles in circumference, abounds in corn and cattle, and is very conſiderable for wool. The principal rivers are Tame, Ouze, and Coln.

Market

Market Towns and Fairs.

Buckingham, *ſ.* Monday ſennight after epiphany (if leap year Mar. 6,) Mar. 7, May 6, Whitſ. thurſday, July 10. Sep. 4, Oct. 2, Nov. 8 (60)

Aylesbury, *ſ.* Saturday before Palm Sunday, June 14, Sep. 25 (44)

Wycomb, *ſ.* Sep. 25 (32)

Marlow, *ſ.* May 5, 6, 7, Oct. 29 (31)

Stony Stratford, *ſ.* Ap. 20, Aug. 2, Oct. 10, Nov. 12 (53)

Oulney, *m.* Eaſter Monday, June 29 (54)

Beconsfield, *th.* Feb. 13, Holy Thurſday (27)

Cheſham, *w.* Ap. 21, July 22, Sep. 28 (29)

Weadower, *th.* May 12, Oct. 2 (39)

Amerſham *tu.* Whit. Monday, Sep. 19 (29)

Newport-pagnel, *ſ.* Ap. 22, June 22, Oct. 22, Dec. 22 (54)

Colnbrook, *tu.* April 5, May 3 (18)

Risborough, *ſ.* May 6, (34)

Ivinghoe, *ſ.* May 6, Oct. 17 (55)

Winſlow, *th.* Holy Thurſday, Aug. 21 (45)

Fenny Stratford, *m.* Ap. 19, July 18, Oct. 10, Nov. 28 (49)

Wooburn, *ſ.* May 4, Nov. 12 ( )

BEDFORDSHIRE.

Contains about 260,000 acres, is 73 miles in circumference, well ſtored with corn and cattle, and famous for fuller's earth, *&c.*

Market Towns and Fairs.

Bedford, *tu.* and *ſ.* 1ſt tueſday in lent, Ap. 21, July 5, Aug. 21, Oct. 11, Dec. 19 (49)

Dunſtable, *w.* aſh we l. May 22, Aug. 12, Nov. 12 (34)

Wooburn, *ſ.* Jan. 1. unleſs ſunday then next day, Mar. 23, July 13, Oct. 6 (42)

Ampthil Hill, *th.* May 4, Dec. 11 (43)

Leighton, *tu.* Feb. 5, whit. tueſ. July 26, Oct. 24 (37)

Luton, *m.* Ap. 25, Oct. 18 (29)

Shefford, *ſ.* Jan. 23, Eaſter mon May 19, Oct. 10 (41)

Biggleſwade, *th.* Feb. 13, ſaturday in eaſter week, whit. monday, July 2[illegible], S. Simon and Jude, Oct. 48 (46)

Potton, *ſ.* 3d tueſday in Jan. O. S. tueſday before eaſter, 1ſt tueſday in July, tueſday before Oct. 29 (43)

Toddington, *f.* Ap. 25, 1ſt monday in June, Sept. 4, Nov. 2, Dec. 16 (33)

Harrold, *th.* tueſday before May 12, tueſday before July 5, tueſday before Oct. 10.

CAMBRIDGESHIRE

Is an inland country, contains about 570,000 acres, is 130 miles in circumference, and affords plenty of corn, cattle, and wild fowl. Cambridge is the ſhire town, and remarkable for a famous univerſity, containing 12 colleges, and 4 halls, all well endowed, and are as follows:

When founded.	Colleges.	By whom founded.
1284	*Peter Houſe* —	by Hugh de Batham, biſhop of Ely.
1346	*Corpus Chriſti*, or *Bennet*	by Henry of Monmouth, duke of Lancaſter.
1348	*Gonvil* and *Caius*,	ſo called from its ſeveral founders.
1441	*King's* ——	by King Henry VI.
1448	*Queen's* ——	by Margaret his Que n.
1497	*Jeſus* ——	by John Alcocke, L L.D. Bp of Ely.
1506	*Chriſt's* ——	by Margaret, Counteſs of Richmond.
1506	*St. John's* ——	by ditto.
1542	*Magdalen* ——	by Edw. Stafford, D. of Buckingham
1546	*Trinity* ——	by King Henry VIII.
1584	*Emanuel* ——	by Sir Walter Mildmay.
1598	*Sidney Suſſex* —	by Francis Sidney, Counteſs of Suſſex.
	Halls.	
1343	*Clare* ——	by Rich. Badew.
1347	*Pembroke* ——	by Mary, Counteſs of Pembroke.
1353	*Trinity* ——	by W. Bateman, Biſhop of Norwich.
1549	*Catherine* ——	by Robert Wood, the Chancellor.

Market Towns and Fairs.

Cambridge, *w.* and *ſ.* June 24 (52)

Ely, *ſ.* aſcenſion-day, thurſday in the week, St. Luke, Oct. 18, falls in (69)

Caxton, *tu.* May 5, Oct. 12 (50)

Linton, *th.* holy thurſday, Aug. 30 (46)

Wisbich, *ſ.* ſat. and mon. before palm ſunday, monday before whit. ſunday, ſaturday before ditto, July 25, Aug. 1ſt and 2d (88)

Soham

Soham, *f.* April 28 (68)
Sturbich, Sept 18, lasts a fortnight (53)
Marsh, isle of Ely, *f.* whit. mon. June 2, Oct. 27 (75)
Thorney, isle of Ely, *tu.* July 1, Sept. 22 ( )

CHESHIRE

Is a maritime or sea country, containing 720000 acres in circumference about 188 miles. Cheese and salt are the principal commodities.

Market Towns and Fairs.

Chester, *w.* and *f.* last th. in Feb. July 5, Oct. 10 (182)
Congleton, *f.* 1st thursday before shrove tide, May 12, July 5. July 13 (156)
Nampt wich, *f.* March 26, Sept. 4, Dec. 15 (162)
Middlewich, *tu.* S. James's day, July 25, holy th. (158)
Northwich, *f.* Aug. 2, Dec. 6 (159)
Macclesfield, *m.* May 6, June 22, July 11, October 4, Nov. 11 (151)
Frodsham, *w.* May 4, Aug. 21 (162)
Stockport, *f.* Mar. 4. 25, May 1, Oct. 25 (160)
Sandbach, *th.* easter tuesday, 1st th. after Sept. 10 (152)
Altringham, *tu.* Aug. 5, Nov. 2 (181)
Malpas, *m.* Mar. 25, July 25, Dec. 8 (157)
Knotsford, *f.* July 10, Nov. 8 (154)
Halton, *f.* Lady-day, April 5 (173)

CORNWALL

Is a maritime county in the most western part of the kingdom, containing about 960 000 acres, and is 150 miles in circumference. The chiefest commodities are tin and copper; it also affords great plenty of wild fowl; it likewise yields great quantities of samphire, eringo, fine slate and marble; likewise vast quantities of fish.

Market Towns and Fairs.

Launceston, *f.* whit. mon., Nov. 17, dec. 6, July 5 (208)
Liskard, *f.* shrove mon. mon. sennight before easter, holy thursday, Aug. 15, St. Matthew, Sept. 21, Dec. 10 (229)
Loftwithel, *f.* June 29, Aug. 24, Nov. 2 (239)
Truro, *w.* and *f.* wed. in midlent, wednesday in whitsun week, Nov. 19, Dec. 18 (274)

Bodmin, *f.* Jan. 25, ſaturday after midlent ſunday, wedneſday before whitſunday, Dec. 6 (263)

Helſton, *f.* ſat. before mid. ſund. ſat. before palm ſund. whitſun mon. July 20, Sept. 9, Nov. 8, 2d ſaturday before Chriſtmas (294)

Padſtow, *f.* Ap. 18, Sep. 21 (232)

Camelford, *f.* friday after March 10th, May 26, July 17, Sep. 6 (250)

Grampond, *f.* Jan. 18, Mar. 25, June 11, (252)

Pedryn, *w. f.* and *f.* May 1, July 7, Dec. 21 (264)

Trogony, *f.* ſhr. tu. May 3, July 25, Sep. 1, Nov. 6 (256)

St. Ives, *w.* and *f.* ſat. before advent ſunday (278)

Penſance, *th.* th. after trinity ſund thurſ. before advent ſunday (290)

Fowey, *f.* May 1, Sep. 10 (240)

St. Germain, *f.* May 28, Aug. 1 (220)

St. Colume, *th.* thurſday after Nov. 13, thurſday in Midlent (259)

Falmouth, *th.* July 27, Oct. 10 (282)

Market Jew, *th.* 3 weeks before eaſter eve, Sep. 29 (287)

Boſcaſtle, *th.* Aug. 5, Nov. 22 (243)

Kellington, *w.* May 4, Sept. 19, Nov. 12 (199)

Eaſt Looe, *f.* Feb. 13, Oct. 10 (232)

Salaſh, *f.* Feb. 2, Aug. 5 (226)

Stratton, *tu.* May 19, Nov. 8, Dec. 11 (211)

CUMBERLAND

Is alſo a maritime country, it contains about 1,040,000 acres, and is in circumference 168 miles; it is a fruitful country, affording good paſture on the hills, and good corn in plenty in the vallies: Fiſh and wild fowl are very plentiful, and coals in abundance; likewiſe large mines of lead and copper. It is bounded northward with Scotland, and weſtward with the Iriſh ſea.

Market Towns and Fairs.

Carliſle is the chief, *f.* Aug. 26, Sep. 19, 1ſt and 2d ſaturday after Oct. 10 (301)

Cockermouth, *m.* 1ſt mon. in May, Oct. 10 (267)

Whitehaven, *th.* Aug. 1 (289)

Penrith, *tu.* whitſun tueſday, Nov. 11 (282)

Keſwick, *f.* Auguſt 2 (283)

Bramp-

Brampton, *tu.* 2d. wedneſday after whitſunday, laſt wedneſday in Aug. (287)
Abbey Holm, *ſ.* October 29 ( )
Egremont, *ſ.* September 19 (287)
Kirk Oswald, *th.* th. before whitſund. Aug. 5 (248)
Langtown, *th.* thurſday after whitſund. thurſday after Mart. Nov. 22 ( )
Ravenglaſs, *ſ.* June 8, Aug. 5 (222)
Whigtown, *tu.* March 25 (288)
Alſton-moor, *ſ.* laſt thurſday in May, 1ſt th. in Sep. (276)
Bootle, *w.* April 5, Sept. 24 ( )
Ireby, *th.* Feb. 24, Sept. 21 (289)

DERBYSHIRE

Is an inland county, 130 miles in circumference, and contains about 680,000 acres, affords good ſtore of corn and wood, with quantities of freeſtone and marble, coal and lead mines in abundance; it alſo yields cryſtal and Alabaſter.

Market Towns and Fairs.

Derby, the county town, *ſ.* Jan. 25, wedneſday in lent aſſize week, friday in eaſter week, friday after may day, friday in whitſun week, July 25, Sept. 27, 28, 29, friday before Michaelmas (122)
Cheſterfield, *ſ.* Jan. 25, Feb. 28, Ap. 3, may 4, July 4, Sep. 25, Nov. 25 (127)
Wirkſworth, *tu.* ſhrove tueſday, May 1, Sep. 5 (118)
Bolſover, *ſ.* no fair (104)
Aſburn, *ſ.* Feb. 13, April 3, May 21, July 5, Aug. 16, Oct. 20, Nov. 29 (133)
Alfreton, *ſ.* July 30 (135)
Bakewell, *m.* eaſter monday, whitſun monday, Aug. 13, monday after Oct. 10, ditto after Nov. 22 (141)
Dronfield, *th.* Jan. 10, Ap. 14, July 15, Sep. 1 (153)
Tidſwell, *w.* May 3, 1ſt wed. in Sep. Oct. 18 (146)
Bilpar, *ſ.* May 12, laſt day in Oct. ( )
Chappel in le Ferth, *th.* thurſday before old condlemas day, Feb. 13, Mar. 29, th. before eaſter, Ap. 30, holy th. three weeks after holy th. July 7, th. before bart. day, Aug. 24, th. after Sept. 29, th. before Nov. 11, (149)
Higham, *ſ.* 1ſt wedneſday after new year's day ( )

DEVON.

DEVONSHIRE

Is a maritime country about 200 miles in circumference, and contains near 1,920,000 acres; it affords plenty of corn, wool, fish, fowl, as also lead and tin mines. It lies on the west of England, and joins to Cornwall, having the sea on the north and south.

Market Towns and Fairs.

Exeter, the capital, *w. f.* and *f.* ash wed. whitsun mon. Aug. 1, Dec. 6 (172)

Barnstable, *f.* Sep. 19, friday before April 21, 2d friday in December (189)

Honiton, *f.* 1st wed. after July 19 (156)

Oakampton. *f.* 2d tues. after March 11, May 14, 1st wednesday after July 5, Aug. 5 (193)

Plimpton, *f.* Feb. 25, Ap. 5, Aug. 12, Oct. 28 (220)

Tavistock *f.* January 17, May 6, Sept. 9, Oct. 10, Dec. 11 (201)

Tiverton, *tu.* Tuesday fortnight after whitsun sunday, Oct. 10 (165)

Plymouth, *m.* and *th.* Jan. 25, Sep. 21 (215)

Totness, *f.* easter tu. May 1, July 25, Oct. 28 (195)

Ashburton, *f.* 1st th. in March, ditto in June, Aug. 10, Nov. 11, (291)

Biddeford, *tu.* Feb. 14. July 18, Nov. 13 (197)

Torrington, *f.* May 4. July 5, Oct. 10 (192)

Axminster, *f.* St. Mark, Ap. 25, wed. after June 24, 1st wed. after Sep. 29 (146)

Chudleigh, *f.* June 11, St. Matthew. Sep. 21 (182)

Moreton, *f.* 1st saturday in June, July 18, St. Andrew Nov. 30 (179)

Kingsbridge, *f.* July 20 (201)

Bow, *th.* holy thursday, Nov. 22 (187)

Brent, *f.* May 13, Oct. 10, (198)

Culliton, *th.* May 1, Nov. 30 (159)

Columpton, *f.* May 1, Oct. 28 (175)

Chumley, *w.* Aug. 2 (184)

Crediton, *f.* May 11, Aug. 21 (183)

Hartland, *f.* easter wednesday, Sep. 25 (197)

New-

Newton Abbot, *w.* June 24, 1ſt wedneſday in Sept. Nov. 6 (187)
Thorncomb, *ſ.* eaſter tueſday ( )
Ufculm, *w.* wedneſday before Good Friday, July 6, Auguſt 12 ( )

DORSETSHIRE

Is a county pleaſant and fruitful, and lies upon the channel, being 150 miles in circumference, and contains about 772,000 acres, yields great plenty of corn, wool, fiſh and wild fowl; it alſo affords hemp, freeſtone and marble.

Market Towns and Fairs.

Dorcheſter, county town, *w.* and *ſ.* Feb. 12, trinity monday, July 5, Aug. 5 (123)
Weymouth, *tu.* and *ſ.* ( )
Melcomb Regis, *tu.* and *ſ.* ( )
Shaftsbury, *ſ.* ſaturday before palm ſunday, June 24, Nov. 22 (103)
Pool, *m.* and *th.* 1ſt thurſday in Nov. (110)
Wareham, *ſ.* Ap. 7, July 5, Sep. 11 (109)
Corfcaſtle, *th.* May 12, Oct. 19 (116)
Cranborn, *th.* Aug. 24, Dec. 6 (98)
Blandford, *ſ.* Mar. 7, July 10, Nov. 8 (107)
Abbotsbury, *th.* July 10 (129)
Cerne Abbey, *w.* midlent monday, holy thurſday October 2 (123)
Frampton, *tu.* Mar. 4, 7, Aug. 1, Sept. 4 (117)
Sherbourn, *ſ.* ſaturday after holy thurſday, July 18, 26, 1ſt monday in Oct. (118)
Winbourn, *ſ.* Good Friday, Sep. 14 (98)
Sturminſter, *th.* May 12, Oct. 24 (122)
Beaminſter, *th.* Sep. 19 (133)
Bridport, *ſ.* Ap. 5, holy thurſday, Oct. 10 (145)
Everſhot, *ſ.* May 12 (123)
Lyme, *ſ.* Feb. 2, Oct. 11 (144)
Stalbridge, *th.* May 6, Sep. 4 (115)

DURHAM

Is a county palatine, 107 miles in circumference, and contains about 610,000 acres; its chief commodities are coal, iron and lead.

Market

Market Towns and Fairs

Durham, the principal, *f.* Mar. 31, three days, September 15 (262)
Aukland, *th.* holy thurſday, June 21, thurſday before St. Michael, Oct. 10 (252)
Darlington, *m.* eaſter monday, whitſun monday, mon. fortnight after ditto, Nov. 22 (243)
Sunderland, *f.* ( )
Barnard's caſtle, *w.* eaſter mon. wed. in whitſun week, St. James's day, July 25, (253)
Stockton, *f.* July 18 (219)

ESSEX

Is a county bounded by the ſea, and lies in the eaſtern part of England; is 146 miles in circumference, and contains 1,240,000 acres; the ſoil yields plenty of corn, cattle and wood: At Walden it affords great ſtore of ſaffron, the beſt in the world, from thence called Saffron-Walden.

Market Towns in Fairs.

Colcheſter, county town, *w.* and *f.* eaſter tueſday, June 24, July 23, Oct. 20 (50)
Harwich, *f.* May 1, Oct. 18 (71)
Malden, *f.* Sep. 18 (38)
Chelmsford, *f.* May 12, Nov. 12 (28)
Barking. *f.* Oct. 22 (8)
Hatfield, *f.* Aug. 5 (28)
Rumford, *w.* June 24 (12)
Walden, *f.* midlent ſaturday, Nov. 1 (41)
Epping, *f.* whitſun tueſday, Oct. 13 (17)
Braintree, *w.* May 8, Oct. 2 (42)
Bellericary, *th.* July 22 Oct. 7 (23)
Brentwood, *th.* July 18 (17)
Dunmow, *f.* May 6, Nov. 8 (37)
Coggeſhall, *f.* whitſun-tueſday (45)
Grayes, *th.* May 23 (19)
Halſtead, *f.* May 6, Oct. 29 (45)
Raleigh, *f.* trinity monday (35)
Manningtree, *tu.* June 15 ( )
Waltham Abbey, *tu.* May 14, Sep. 25, 26 (12)

Thax-

Thaxted, *f.* May 27, Aug. 10 (41)
Meſſing, *tu.* 1ſt tu. in July ( )
Ongar, *ſ.* Sep. 30 ( )
Rochford, *th.* eaſt. tu. wed. after Sept. 29 (40)
Wilham, *tu.* mond. before whitſund. Sept. 14 (36)

GLOUCESTERSHIRE

Is a county fruitful and delightful: It contains about 800,000 acres, affords ſome of the beſt cheeſe in the nation, and wool hardly inferior to Spaniſh. It alſo abounds in wood, iron, ſteel, and ſalmon; its chiefeſt manufacture is the woollen.

Market Towns and Fairs.

Glouceſter, county town, *w.* and *ſ.* Ap. 5, July 5, Sep. 28, Nov. 28 (102)
Tewkſbury, *ſ.* March 7, May 24, June 22, Sep. 4, Oct. 10 (96)
Blakeney, *w.* Ap. 12, Nov. 12 ( )
Durſley, *th.* May 6, Dec. 4 (97)
Cambden, *w.* aſh wed. Apr. 23, July 25, Nov. 8 (86)
Newnham, *ſ.* June 11, Oct. 18, (106)
Stroud, *ſ.* May 12, Aug. 21 (93)
Cheltenham, *th.* 2d th. in Ap. holy thurſ. Aug. 5 (95)
Lechlade, *tu.* Aug. 10, Sep. 9 (74)
Cirenceſter, *m.* and *ſ.* eaſter tu. July 18, Nov. 8 (61)
Sodbury, *th.* May 23, June 24 (103)
Painſwick, *tu.* whitſun tu. Sep. 19 (94)
Stow, *th.* May 12, Oct. 24 (77)
Tetbury, *w.* aſh wed. July 22 (93)
Wickwear, *m.* Ap. 25, July 2 ( )
Thornbury, *ſ.* eaſter m. Aug. 15, mon. before St. Tho. Dec. 21 ( )
Winchcomb, *ſ.* May 16, July 28 (87)
Wooten, *ſ.* Sep. 25 (99)
Newent, *ſ.* wed. before eaſter, wed. before whitſund. Aug. 1, friday after Sep. 8 (104)
Berkley, *w.* May 14 (111)
Coleford, *ſ.* June 20, Nov. 24 (121)
Hampton, *tu.* trinity mond. Oct. 29 (90)
Leonard Stanley, *ſ.* July 20 ( )
Lidney, *w.* May 4, Nov. 8 ( )

Mitchel

Mitchel Dean, *m.* eaſt mon. Oct. 10 (114)
Moreton, *tu.* Apr. 5, Oct. 10 (83)
Northleach, *w.* wed. bef. Apr. ditto before Sep. 29, 3d wed. in May ( )

HAMPSHIRE

Or the coſuty of Southampton, borders upon the channel, being a pleaſant healthful and fruitful country, about 100 miles in circumference, and contains about 1,312,500 acres: It affords plenty of corn, graſs, ſheep and wood, and is famous for hogs and honey. To this county belongs the Iſle of Wight, of a very conſiderable extent.

Market Towns and Fairs.

Southampton, county town, *tu.* and *f.* Ap. 25, trinity mond. (78)
Wincheſter, *w.* and *f.* 1ſt. mond. in lent, Oct. 24 (67)
Portſmouth, *th.* and *f.* July 10, (73)
Andover, *f.* midlent ſat. May 12, Nov. 16 (66)
Lymington, *f.* May 12, Oct. 13 ( )
Kingſclear, *tu.* 1ſt. tu. in Ap. 1ſt. tu. after old michaelmas, Oct. 10 (52)
Ringwood, *w.* July 10, Dec. 11 (96)
Odiam, *f.* midlent ſat. July 31 (41)
Rumſey, *f.* eaſter monday, Aug. 26, Nov. 8 (78)
Baſingſtoke, *w.* wed. in wit. week, Oct. 10 (48)
Chriſtchurch, *m.* trin. th. Oct. 17 (101)
Fareham, *w.* June 29 (65)
Goſport, *th.* May 4, Oct. 10 ( )
Newport, *w. f.* whit mond. (85)
Overton, *m.* May 4, July 18, Oct. 22 ( )
Petersfield, *f.* July 10, Dec. 11 (55)
Alresford, *th.* June 24 (59)
Whitchurch, *f.* Apr. 23, June 20, July 7, Oct. 19 (57)
Yarmouth, *f.* July 25 (92)

HERTFORDSHIRE

Is a fine incloſed county, the land ſomewhat ſtony, but very fruitful, affords great plenty of corn, and is remarkable for good malt; it is 130 miles in circuit, contains about 451,023 acres, and has a fine air.

Mark

Market Towns and Fairs.

Hertford, county town, *f.* ſaturday fortnight before eaſter, may 12, july 5, nov. 8 (23)
St. Albans, *f.* mar. 25, june 17, ſep. 29 (21)
Barnet, *w.* april 8, 9, 10, ſep. 4, 5, 6 (11)
Ware, *tu.* laſt tueſday in april, tu. before St. Matthew's day, (211)
Barkhamſtead, *m.* ſhrove m. whit. mon. St. James's day, july 25 (26)
Hatfield, *th.* april 23, oct. 18 (20)
Buntidgford, *m.* june 29, St. Andrews, nov. 30 (32)
Baldock, *th.* wed. after St. Matthias, Feb. 24, laſt th. in may, aug. 6, oct. 2, dec. 11 (38)
Hitchen, *tu.* april 2, may 30, oct. 12, (35)
Stevenage, *f.* 9 days before eaſter, 9 ditto before whitſuntide, St. Swithen, july 15, 1ſt friday in ſept. (32)
Tring, *f.* june 29, ſep. 29 (32)
Watford, *tu.* trin. mon. and tueſday (17)
Hempſtead, *th.* 1ſt thurſday after whitſun week (29)
Barkway, *f.* july 20 (35)
Royſton, *th.* aſh wed. wed. in eaſter, wed. in whitſund. 1ſt wed. in july, wed. after ſep. 29 (38)
Sawbridgworth, *w.* ap. 23, oct. 19 ( )
Stortsfords Biſhops, *th.* holy th. th. after trinity ſunday, oct. 10 (28)

HEREFORDSHIRE

Is an inland county of a good ſoil, and healthful air, 100 miles in circuit, and contains about 660,000 acres: It affords plenty of wool, wheat, ſalmon and cyder.

Market Towns and Fairs.

Hereford, the capital, *w. f.* and *f.* tueſday after candlemas day, feb. 2, wed. in eaſter week, may 19, july 1, oct. 20 (130)
Leominſter, *f.* feb. 13, tu. after midlent ſund. may 13, july 10, ſep. 4, nov. 8 (136)
Weobly, *tu.* holy thurſ. 3 weeks after ditto (129)
Roſs, *th.* holy thurſday, june 13, july 20, oct. 10, dec. 11 (117)
Pembridge, *tu.* may 12, nov. 22 (130)

Ledbury, *tu.* mond. before eaſter, may 12, june 22, oct. 2, mon. before St. Thomas, dec. 21 (118)

Bromyard, *m.* th. before mar. 25, may 3, whitſun mon. th. before St. James, july 25, th. before oct. 29 (124)

Kyneton, or Kington, *w.* wed. before eaſter, whit. mon. aug. 2, ſep. 4 (132)

HUNTINGDONSHIRE

Is a ſmall inland county of about 67 miles in circuit, and contains about 240,000 acres: It is an open country, very fertile and delightful, chiefly abounding in corn and cattle.

Market Towns and Fairs.

Huntingdon, the chief, *ſ.* mar. 25 (57)
St. Ives, *m.* whit. monday, Oct. 10 (57)
Kimbolton, *ſ.* dec. 11 (54)
Ramſey, *w.* july 22 (67)
St. Neots, *th.* aſcen. th. june 13, aug. 1, dec. 17 (57)

KENT

Is a ſea county on the eaſt part of the channel; it is 160 miles in circumference, and contains about 1,248000 acres. It affords plenty of corn, good paſture, and the beſt cherries and pippins in the kingdom.

Market Towns and Fairs.

Canterbury, the capital, *w.* and *ſ.* ſep. 29 (56)
Rocheſter, *ſ.* may 30, dec. 11 (30)
Maidſtone, *th.* feb. 13, may 12, june 20, Oct. 17 (36)
Dover, *w.* and *ſ.* nov. 22 (71)
Sandwich, *w.* and *ſ.* dec. 4 (69)
Rumney, *ſ.* aug. 21 (72)
Smarden, *ſ.* oct. 10 ( )
Hithe, *ſ.* july 10, dec. 1 (64)
Bromley, *th.* feb. 3, aug. 5 (9)
Cranbrook, *ſ.* may 30, ſep. 29 (60)
Dartford, *ſ.* aug. 2 (15)
Eltham, *m.* palm monday, eaſter mon. whitſun monday, oct. 10 (62)
Feverſham, *w.* and *ſ.* feb. 25, aug. 12 (48)
Folkſtone, *th.* june 28 (69)

Grave-

Graveſend, *w.* and *ſ.* ap. 23, Oct. 24 (22)
Lenham, *tu.* june 6, oct. 23 (47)
Lidd, *th.* july 24 (74)
Sevenoaks, *ſ.* july 10, oct. 12 (23)
Tenterden, *ſ.* may 5 (59)
Malling, *ſ.* aug. 12, oct. 2, nov. 17 (29)
Milton, *ſ.* july 24 (42)
Tunbridge, *ſ.* aſh wed. july 5, oct. 29 (29)
Weſterham, *ſ.* ſep. 19 (23)
Woolwich, *ſ.* (9)
Wrotham, *tu.* may 4 (25)
Wye, *tu.* and *th.* mar. 24 (57)
Appledore, *tu.* june 22 ( )
Aſhford, *ſ.* may 17, ſep. 9 (57)
Deal *th.* april 5, october 10 (74)
Goudhurſt, *w.* aug. 26 (48)
Queenborough, *m. th.* aug. 5 ( )

LANCASHIRE

Is a ſea coaſt county, bounded on the eaſt by the Iriſh ſea; it is 170 miles in circuit, and contains 1,150,000, acres: The air is very wholeſome, the ſoil good, and yields corn of all ſorts; It affords plenty of pit-coal, and great quantities of excellent fiſh.

Market Towns and Fairs.

Lancaſter, county town, *ſ.* may 1, july 5, oct. 10 (232)
Clithero, *ſ.* july 21, mar. 24, 4th ſat. after michaelmas, ſep. 29, dec. 7 (207)
Liverpool, *ſ.* july 25, nov. 11 (183)
Preſton, *w. ſ.* and *ſ.* 1ſt ſaturday after epiphany, jan. 6, march 27, ſept. 27 (211)
Wigan, *m.* and *ſ.* oct. 13, holy th. june 27 (195)
Manchester, *ſ.* whitſun monday, St. Matthew, ſep. 21, nov. 6 (166)
Warrington, *w.* july 18, St. Andrews, nov. 30 (182)
Cartmel, *m.* whitſun m. 1ſt tu. after oct. 23 (260)
Coln, *w.* may 12, oct. 10 (200)
Chorley, *ſ.* may 5, aug. 20, ſep. 5 (154)
Dalton, *ſ.* june 6, oct. 23 (200)
Roachdale, *tu.* may 14, whit tu. nov. 7 (175)
Hawkſhead, *m.* holy th. ſep. 21 (265)

Haſlingdon, *w.* may 8, july 1, oct. 10 (178)
Garſtang, *th.* holy th. july 21, dec. 3 (225)
Kirkham, *tu.* june 24, oct. 18 (191)
Hornby, *m.* july 30 (295)
Ulverſton, *th.* holy th. 1ſt th. after oct. 23 (240)
Bolton, *m.* july 19, oct. 2 (237)
Blackbourn, *m.* may 21, ſept. 30, oct. 21 (191)
Ormſkirk, *tu.* whitmonday, ſep. 8 (189)
Poulton, *m.* feb. 2, may 3, july 25 (212)
Bury, *th.* mar. 5, may 3, th. but one after whitſunday, ſep. 18 (183)
Preſcot, *tu.* june 12, all ſaints, nov. 1 (190)
Upholland, *w.* july 15 ( )

LEICESTERSHIRE

Is a pleaſant inland county, 96 miles in circuit, contains about 560,000 acres, abounds in corn and good paſture, and is remarkable for beans and peas for horſes; it is eminent for large ſheep, which produce abundance of wool.

Market Towns and Fairs.

Leiceſter, county town, *w.* and *ſ.* may 12, july 5, oct. 10, dec. 8 (98)
Boſworth, *w.* may 8, july 10 (103)
Hallaton, *th.* holy th. may 23, june 13 (80)
Hinkly, *m.* aug. 26 (91)
Lutterworth, *th.* ap. 2, ſep. 16 (84)
Melton Mowbray, *tu.* 1ſt tueſday after jan. 17, whit tu. aug. 21 (104)
Mountſorrel, *m.* july 10 (104)
Aſhby de la Zouch, *ſ.* eaſter tu. whit tu. St. Bart. aug. 24, St. Simon and Jude, oct. 28 (74)
Harborough, *tu.* ap. 29, oct 19 (84)
Loughborough, *th.* mar. 28, apr. 25, holy th. aug. 12, nov. 13 (107)
Bilsden, *ſ.* ap. 23, July 25 (91)

LINCOLNSHIRE

Is a maritime county, part bordering on the German ſea, and contains about 1,740,000 acres, being 130 miles in circuit; the eaſtern parts are marſhy, and well ſtored with wild fowl.

Market

Market Towns and Fairs.

Lincoln, the capital, *f.* 2d tu. after ap. 12, july 5, 18 wed. after ſep. 12, nov. 12 (128)
Boſton, *w.* and *f.* may 4, aug. 11, dec. 11 (114)
Grantham, *f.* 5th m. in lent, holy th. july 10, oct. 26, dec. 17 (104)
Stamford, *m.* and *f.* tu. before feb. 13, m. before midlent, midlent m. m. before may 12, m. after june 13, aug 5, nov. 8 (89)
Grimsby, *w.* june 17, ſept. 15 (158)
Gainsborough, *tu.* eaſter tu. oct. 20 (137)
Spalding, *tu.* ap. 27, june 29, aug. 30, ſep. 25, dec. 17 (98)
Stainton, *m.* oct. 29 (129)
Alford, *tu.* whit tu. nov. 8 (134)
Burton, *m.* trin. th. ( )
Kirton, *f.* july 18, dec. 11, (136)
Bourn, *f.* march 7, may 6, oct. 29, (93)
Tottershall, *tu.* may 14, ſep. 25 (118)
Waintfleet, *f.* 3d f. in may, july 5, aug. 24, oct. 24 (124)
Donnington, *f.* may 26, aug. 17, ſep. 6, oct. 17 ( )
Fokingham, *th.* aſh. wed. palm m. may 12, june 16, july 3, nov. 10, 22 (104)
Holbeach, *th.* may 17, 2d tu. in ſep. (98)
Horncaſtle, *f.* june 22, aug. 21 (122)
Louthe, *w.* and *f.* may 24, aug. 16, dec. 3 (133)
Sleeford, *m.* plow m. eaſter m. whit m. 2 g. 12, oct. 10 (110)
Spilsby, *m.* m. before whit m. m. after ditto, m. fortnight after whitſun, *if in may*, 2d m. in july (122)
Brig, *th.* aug. 16 ( )
Caſtor, *m.* june 1, oct. 16 (147)
Corby, *th.* aug. 26, m. before oct. 10 (90)
Crowland, *f.* ſep. 4 ( )
Crowle, *f.* laſt m. in may, ſep. 4, nov. 22 (71)
Empworth, *f.* ſep. 9 (136)
Market Deeping, *th.* 2d w. after may 11, w. before Lammas, aug 1, oct. 10 (87)
Market Raſen, *tu.* oct. 6 (139)
Navenby, *th.* aug. 18, oct. 17 ( )

MIDDLESEX

Is the metropolis of the kingdom, an inland county, having the ſoil fertile, the air ſweet and wholeſome; the Thames parts it from the county of Surry, and is allowed to be the fineſt river in the world.

Market Towns and Fairs.

London, the metropolis, *markets each day in the week.*
Bartholomew, ſep. 4
Brentford, *th.* may 17, 18, 19, ſep. 12, 13, 14, 15 (10)
Stains, *f.* may 11, ſep. 19 (19)
Uxbridge, *th.* july 31, oct. 10 (18)
Enfield, *f.* may 25, nov. 29 (11)
Edgware. *th.* may 4 (12)
Bow, *th. f.* and *f.* in whitſun-week (2)

MONMOUTHSHIRE

Lies upon the borders of Wales, was formerly reckoned a part of it, but is now numbered among the Engliſh counties: It is accommodated by the famous river Severn, and contains 34,000 acres, being 80 miles in circuit. This country is healthful, and abounds with corn, cattle, ſalmon and trout.

Market Towns and Fairs.

Monmouth, the principal, *f.* whit tu. ſep. 4, nov. 22 (127)
Caerleon, *th.* may 10, july 20, ſep. 21 (141)
Chepſtow, *f.* fr. in whitſun week, ſat. before june 20, aug. 1, fr. ſen. after oct. 18 (131)
Newport, *f.* holy thurſday, whit th. aug 15, nov. 6 (151)
Pontipool, *f.* ap. 22, july 5, oct. 10 (136)
Uſke, *m.* monday after trin. oct. 18 (130)

NORFOLK

Is a large county, bordering on the northern coaſt, upon the German ſea: It is 180 miles in circuit, and contains 1,148,000 acres. Its principal commodities are corn, wool, honey and ſome ſaffron; but chiefly ſtuffs and herrings.

Markit

Market Towns and Fairs.

Norwich, capital, *w. f. and ſ.* day before good friday, ſat. before whitſunday, ſat. after ditto (108)
Lynn, *tu.* and *ſ.* feb. 2 (108)
Yarmouth, *ſ.* friday and ſaturday in eaſter week (112)
Thetford, *ſ.* may 14, aug. 2, ſep. 25 (80)
Attleborough, *th.* april 11, holy th. aug 15 (93)
Aleſham, *ſ* mar. 23, laſt tu. in ſep. (118)
Dearham, *ſ.* feb. 3, ſep. 28 (97)
Walſingham, *ſ.* whit monday (116)
Downham, *ſ.* ap. 27 (96)
Wymondham, *ſ.* feb. 2, may 6, ſep. 7 (120)
Repeham, *ſ.* june 29 (111)
Cawſton, *tu.* jan. 10, ap. 14, aug. 28 (123)
Cromer, *ſ.* whitſun m. (127)
Diſs, *ſ.* oct. 28 (93)
Harleſton, *w.* july 5, ſep. 9, (94)
Harling, *tu.* may 4, oct. 24 (88)
Holt, *ſ.* ap. 25, nov. 24 (116)
Watton, *w.* june 29, ſep. 29, oct. 28 (89)
Worſtead, *ſ.* may 3 (117)
Hingham, *ſ.* march 6, whit tu. oct. 2 (94)
Loddon, *ſ.* eaſter monday, m. after Martinmas, nov. 11 (105)
Methwould, *th.* ap. 25, (79)
New Buckingham, *ſ.* may 29, nov. 22 (79)
Swaffham, *ſ.* may 12, july 21 (94)

NORTHAMPTONSHIRE

Is accounted one of the fineſt inland counties in the kingdom; is 120 miles in circuit, and contains about 550,000 acres. The air good, the ſoil rich; hath ſeveral fine rivers, and abounds in corn wood and cattle.

Market Towns and Fairs.

Northampton, county town, *ſ.* feb. 20, ap. 5, may 4, aug 5, 26, ſep. 19, nov. 28, dec. 19 (68)
Peterborough, *ſ.* july 10, oct. 2 (76)
Brackley, *w.* wed. after feb. 25, 3d ſat. in ap. wed. after june 22, wed. before oct. 10, dec. 11 (57)
Daventry, *w.* eaſter tu. june 6, aug. 3, oct. 2, 27 (73)

Oundle

Oundle, *f.* feb. 25, whit m. aug. 21 (65)
Towcester, *tu* may 12, oct. 29 (60)
Rowell, *m.* trinity m. (69)
Kettering, *f.* th. before dec. 21, easter th. oct. 10 (75)
Wellingborough, *w.* easter w. whit. w. oct. 29, ( )
Cliff, *tu.* oct. 29 ( )
Higham Ferrers, *f.* tu. before feb. 5, mar. 7, may 3, june 28, th. before aug. 5, oct. 10, dec. 17 (93)
Rockingham, *th.* sep. 25 (82)
Thrapston, *tu.* may 1, aug 5 (64)
Weldon, *th.* feb. 19, may 21, aug. 20, sep. 17 (83)

NORTHUMBERLAND

Is a sea county, bordering upon Scotland. Towards the sea it is tolerable fruitful. In this county are abundance of lead and coal mines, with good store of wild fowl and fish, particularly salmon.

Market Towns and Fairs.

Newcastle, the chief, *tu. f.* aug. 12, nine days, oct. 29, nine days (279)
Berwick, *f.* friday in trinity week (359)
Morpeth, *w.* wed. th. fr. sennight before whitsuntide, wed next before july 22 (291)
Hexham, *f.* aug. 5, nov. 8 (276)
Wooler, *th.* may 4, oct. 17 (327)
Billingham, *tu. f.* sat. after sep. 15 (286)
Haltwhistle, *tu.* may 14, nov. 22 ( )
Warkworth, *th* St. Mark, ap. 25, if on a thursday, if not, the thursday before, nov. 22, old Michaelmas, if on a thursday, if not, the thursday before.

NOTTINGHAMSHIRE

Is an inland county, in circuit 110 miles, and contains 560,000 acres: the air is good and healthful, the soil is but indifferent; the south part pretty fruitful, the west woody, and yields plenty of pitcoal. The river Trent divides it from Lincolnshire.

Market Towns and Fairs.

Nottingham, county town, *w. f.* and *f.* frid. next after jan. 13, mar. 7, thursday before easter, oct. 2, 3, 4 (122)

Newark,

Newark, *w.* friday before paſſion ſunday, may 14, whitſun tu. aug. 2, nov. 1, dec. 21 (118)
Retford, *ſ.* mar. 23, oct. 2, (134)
Mansfield, *th.* june 29, 2d thurſday in oct. (136)
Southwell, *ſ.* whit monday (114)
Bingham, *th.* feb. 20, 21, 1ſt tu. in may, nov. 8 (108)
Worksop, *w.* march 10, june 21, oct 3 (133)
Tuxford, *m.* ſep. 25, may 12 (131)
Blythe. *w.* holy thurſday, oct. 6 ( )

OXFORDSHIRE

Is a pleaſant, healthful and fertile county. It is watered with delightful rivers, as the Thames, the Charrald, &c. It is famous for the fineſt univerſity in the world, which conſiſts of twenty colleges endowed, and five halls not endowed, *viz.*

Founded Anno	COLLEGES,	By whom founded.
872	*Univerſity*,	by the Saxon king Alfred.
1262	*Baliol*,	by John Baliol, king of Scotland.
1274	*Merton*,	by Walter de Merton, Biſhop of Rocheſter.
1316	*Exeter*,	by Walter Stapleton, Bp. of Exeter.
1325	*Oriel*,	by king Edward II.
1340	*Queen's*	by Robert Egleſford, B. D.
1375	*New*	by William of Wickham, Biſhop of Wincheſter.
1427	*Lincoln*,	by Richard Fleming and Thomas Rotherham, biſhops of Lincoln.
1437	*All Souls*,	by Henry Chichely, A. Bp. of C.
1459	*Magdalen*,	by William of Wainfleet, biſhop of Wincheſter.
1511	*Brazen Noſe*	by William Smith, Bp. of Lincoln, and Sir Richard Sutton, Knt.
1516	*Corpus Chriſti*,	by Richard Fox, Bp. of Wincheſter.
1549	*Chriſt Church*,	by king Henry VIII.
1555	*Trinity*	by Sir Thomas Pope
1557	*St. John's*,	by Sir Thomas White, Lord Mayor of London.
1571	*Jeſus*,	by Queen Elizabeth.
1609	*Wadham*,	by Nicholas Wadham, Eſq;

Founded

Founded *Anno*	Colleges.	By whom founded,
1620	*Pembroke*, ——	by Thomas Teſdale, Eſq; and Richard Wirwich, B. D.
1700	*Worceſter*, ——	by Sir Thomas Cooke.
1740	*Hartford*, ——	by Dr. Newton.

Halls.

St. Edmund's, St. Albans, St. Mary's, New Inn, Magdalen } belonging to { Queen's, Merton, Oriel, New, Magdalen } College.

Market Towns and Fairs.

Oxford, the capital, *w.* and *ſ.* May 3, Sep. 1, thurſd before Michaelmas (55)

Woodſtock, *tu.* mar. 25, tu. in whitſun week, tu. afte nov. 1, oct. 2, dec. 17 (60)

Banbury, *th.* thurſday after jan. 17, 1ſt th. in len aſcen. day, jun 13, aug. 12, th. after oct. 10, oct. 29 (7

Burford, *ſ.* july 5, ſep. 25 (85)

Watlington, *ſ.* lady day, mar. 25, oct. 10 (43)

Witney, *th.* th. in eaſter week, june 29, nov. 23 (65)

Chippingnorton, *w.* march 7, may 6, laſt frid. in ditto jul. 18, ſep. 4, nov. 8, laſt frid. in novembe (76)

Deddington, *tu.* aug. 10, nov. 22, (62)

Bampton, *w.* aug. 26 (66)

Thame, *tu.* eaſt. tu. old michaelmas, oct. 10 (45)

Charlbury, *ſ.* jan 1, 2d friday in lent, 2d ditto aft may 12, oct. 10 ( )

Henley, *th.* mar. 7, holy th. th. after trinity ſunda th. ſennight before oct. 10, (35)

Biceſter, *ſ.* f. in eaſter week, 1ſt f. in june, aug. dec. 13 (51)

RUTLANDSHIRE

Is a ſmall inland county, 40 miles in circumference, con taining about 110,000 acres; affords plenty of corn an cattle.

Market Towns and Fairs.

Oakham, *ſ.* march 15, may 6, ſep. 11 (96)

Uppingham, *w.* march 7, july 7, (87)

SUSSEX

Is a martime county, lying upon the channel, between Kent and Hampſhire, containing 1,140,000 acres, and is 150 miles in circumference. The county is fertile and healthful, and is exceeding pleaſant. It produces wonderful crops of corn of all ſorts; and hath alſo the fineſt woods and rivers and affords the beſt game for hunting, fiſhing and fowling.

Market Towns and Fairs.

Chicheſter, the chief, *w.* and *ſ.* may 3, whitſun m. aug. 5, oct. 10, 20 (63)
Eaſt Grinſtead, *th.* july 13, dec. 11 (29)
Haſtings, *w.* and *ſ.* whitſun tu. july 26, oct. 23 (62)
Arundel, *w.* and *ſ.* may 14, aug. 21, ſep. 25, dec. 17 (55)
Horſham, *ſ.* m. bef. whit. july 18, nov. 27 (33)
Midhurſt, *th.* mar. 25. whit tu oct. 18 (52)
Steyning, *w.* june 9. ſept. 19, oct. 10 (47)
Petworth, *w.* holy th. nov. 20 (46)
Battle, *th.* whitſun monday, nov. 22 (57)
Brighthelmſtone, *th.* holy th. ſep. 4 (50)
Cuckfield, *ſ.* may 25, whitſun tu. ſep 19, nov. 18 (40)
Lewes. *ſ.* may 6, whitſun tu. oct. 2 (50)
Shoreham, *ſ.* july 25 (55)
Storrington, *w.* may 12, nov. 22 ( )
Tarring, *ſ.* ap. 5, oct. 2 ( )

SHROPSHIRE

Is a plentiful inland country, the air and ſoil good; it is in circuit 134 miles, contains about 890,000 acres, and affords plenty of corn, wood and pit coal.

Market Towns and Fairs.

Shrewsbury, county town, *w.* *th.* and *ſ.* ſ. next after march 15, wed. after eaſter week, w. before whitſun. july 3, aug. 12, oct. 2, dec. 12 (157)
Biſhopscaſtle, *ſ.* fr. before feb. 13, fr. before good fr. 1ſt ditto after may day, july 5, ſep. 9, nov. 13, (156)
Bridgnorth, *ſ.* th. before ſhrove tide, june 30, aug. 2, oct. 29 (135)
Ludlow, *m.* tu. before eaſter, wed. in whitſun week, aug. 21, ſep. 28, dec. 8 (136)

Wenlock

Wenlock, *m.* may 12, july 5, oct. 17, dec. 4 (143)
Eliſmere, *tu.* 3d tu. in ap. whit. tu. aug. 25, nov. 14 (144)
Whitchurch, *f.* whitſun monday, oct. 28 (150)
Newport, *f.* ſat. before palm ſunday, may 28, july 27, dec. 10 (134)
Wem, *th.* may 6, holy th. june 29, nov. 22, (148)
Church Stretton, *tu.* may 14, ſep. 24, ( )
Oſweſtry, *m.* march 15, may 13, aug. 15, dec. 11 (157)
Cleoberry Mortimer, *w.* may 2, oct. 27 (118)
Halls owen, *m.* m. after eaſter m. june 22 ( )
Shiffnal, f. aug. 8, nov. 22, (128)
Wellington, *th.* mar. 29, june 22, nov. 17 ( )

SOMERSETSHIRE

Is a large plentiful ſea county, in the Weſt of England, in circumference 204 miles, containing about 907,500 acres; it affords great plenty of excellent corn, and good paſture, which feeds abundance of fine cattle; and alſo yields plenty of lead, copper, chryſtal ſtones, and woad for dyers: Its chief manufactures are cloth and ſerges.

Market Towns and Fairs.

Briſtol the capital, *w. f.* and *f.* jan. 25, july 25 (115)
Bath, *w.* and *f.* feb. 3, june 29 (108)
Wells, *w.* and *f.* may 30, june 24, oct. 10, 14, nov. 17, 30 (120)
Bridgwater, *th.* 2d th. in lent, june 24, ſep. 21, dec. 28 (143)
Ivelcheſter, *w.* july 2, aug. 2 (125)
Taunton, *w.* and *f.* june 17, july 7, three days (147)
Watchet, *f.* aug. 25 ( )
Axbridge, *th.* mar. 25, june 11 (130)
Sheptonmallet, *f.* aug. 8 (111)
Somerton, *m.* tu. in paſſion week, tu. 3 weeks after ditto, tu. 6 weeks after ditto, tu. 9 weeks after ditto (128)
Wellington, *th.* th. before eaſter, holy th. (151)
Dunſter, *f.* whit m. (164)
Wivelſcomb, *tu.* may 12, ſep. 25 (153)
Dulverton, *f.* july 10, nov. 8 (169)
Glaſtenbury, *tu.* ſep. 8 (120)
Chard, *m.* may 3, aug. 5, nov. 2 (140)

Langport,

SURREY

Is an inland county, parted by the river Thames from Middleſex: It contains about 592,000 acres, and is in compaſs 112 miles: The country is plentiful, and the air healthful; it is famous for hunting and horſe racing. The principal goods are hats, made in ſouthwark, for Exportation.

Market Towns and Fairs.

Guildford, county town, *ſ.* may 4, nov. 22 (30)
Rygate, *tu.* whit mon. ſep. 14 (23)
Southwark, *m. w.* and *ſ.* ſep. 8 ( )
Dorking, *th.* the day bef. aſcenſion day (24)
Kingſton, *ſ.* th. fr. and ſat. in whitſon week, aug. 2, 3, 4, nov 13 (12)
Croydon, *ſ.* july 5, oct. 2 (10)
Farnham, *th-* holy th. june 24, nov. 2 (40)
Chertſey, *w.* 1ſt mon. in lent, may 14, aug. 6, ſep. 25 (12)
Ewell, *th.* may 12, oct. 29 (14)
Godalming, *ſ.* feb, 13, july 10 (34)
Haſlemere, *t.* may 1, ſep, 25 (41)

WARWICKSHIRE

Is a pleaſant healthful and plentiful county, 155 miles in compaſs, and contains about 670,000 acres: The ſoil for the moſt part is good and fertile; on the north a little woody: This county is remarkable for excellent cheeſe.

Market Towns and Fairs.

Warwick, county town, *ſ* may 12, july 5, ſep. 4, nov. 8 (84)
Coventry, *ſ.* may 2, friday in trin. week, nov. 1 (98)
Stratford, *th.* may 14, ſep. 25, thur. ſe'nnight after ditto (97)
Atherſtone, *tu.* april 7, july 18, ſep. 19, dec. 4 (103)
Aulceſter, *tu.* tu. before april 5, may 18, oct 7 (91)
Birmingham, *th.* th. in whitſon week, oct 10 (109)
Coleſhill, *w.* ſhrove mond. may 6, oct 2 (103)
Henley, *m.* march 25, tu. in whitſon week (85)
Nuneaton, *ſ.* may 14 (100)

Rugby, *f.* may 15, aug. 21, nov. 22 (76)
Southam, *m.* july 10 (78)
Sutton, *m.* trin. mon. nov. 8 (105)
Kineton or Kington, *tu.* St. Paul, jan 25, St. Luke, oct. 18 (89)
Tamworth, *f.* april 12, ſep, 12 (107)

WESTMORELAND,

Is a county in the north-weſt of England; it is 120 miles in circuit; containing about 510,000 acres: This county abounds in hills and marſhes.

Market Towns and Fairs,

Kendal, *f.* may 6, nov. 8 (257)
Ambleſide, *w.* wed. after whit. oct. 29 (267)
Brough, *w.* th. before whitſuntide (255)
Appleby, *f.* whitſon eve, whit mon. aug. 10 (276)
Kirbilonſdale, *th* holy th. St. Thomas, dec. 21 (232)
Kirbyſteven, *m.* eaſter mon. tu. after whitſ. St. Luke, old ſtile (223)
Orton, *f.* may 2, fri. bef. whitſ.

WILTSHIRE

Is a fine inland county, 140 miles in circumference, and contains about 876,000 acres. In the middle lies Saliſbury plain, very remarkable for its large extent, and for feeding great numbers of ſheep: Wool is the principal commodity.

Market Towns and Fairs.

Salisbury, the capital, *th* and *f.* tu. after jan. 6, mon. before april 5. whit mon. and tueſ. after act 10 (84)
Hindon, *th.* mon. bef. whitſon. oct. 18 (94)
Chippingham, *f* may 6, june 11, oct. 18, nov. 30 (94)
Wilton, *w.* may 4, ſep. 12, nov. 13 (86)
Marlborough, *f.* july 10, nov. 22 (75)
Malmsbury, *f.* march 17, april 7, may 26 (90)
Wootenbaſſet, *th* may 4, nov. 13. dec, 19 (78)
Cricklade, *f* 2d th. in april, ſep. 21 (81)
Devizes, *th.* feb. 13, holy th. june 13, july 5, oct. 2, 20 (89)
Weſtbury, *f*, 1ſt fr, in lent. whit mon. (95)
Highworth, *w.* aug. 12 (73)

Calne

Calne, *tu.* may 6, aug. 2 (88)
Warminſter, *ſ.* april 11, aug. 10, oct. 28 (99)
Bradford, *m.* trin. monday (99)
Ambersbury, *ſ.* may 17, june 22, dec. 12 (80)
Trowbridge, *ſ.* july 25 (98)
Swindon, *m.* m. before ap. 5, 2d m. after may 11, 2d ditto after ſep. 11, 2d ditto in oct. (73)
Meer, *ſ.* may 6, aug. 24, ſep. 29 (102)

WORCESTERSHIRE

Is a plentiful inland county, 130 miles in circuit, and contains 540,000 acres; the ſoil is for the moſt part good and fertile, affords corn in great plenty, and is very numerous in cattle; it yields plenty of fiſh and fruit.

Market Towns and Fairs.

Worceſter, the capital, *w.* *ſ.* and *ſ.* ſat. before palm ſunday, ſat. in eaſter week, aug. 15, ſep. 19 (112)
Eveſham, *m.* candlemas day, feb. 2, firſt m. after eaſter, whit m. ſep. 21 (95)
Bewdley, *ſ.* ap. 23, dec. 10, 11 (122)
Droitwich. *ſ.* good friday, oct. 28, dec. 21 (95)
Stourbridge, *ſ.* mar. 29, ſep. 8 (117)
Kidderminſter, *th.* holy th. three weeks after ditto, ſep. 4 (104)
Bromſgrove, *tu.* june 24, oct. 1 (93)
Peiſhore, *tu.* eaſter tu. june 26, tu. before nov. 1 ( )
Tenbury, *tu.* ap. 26, july 18, ſep. 26 (128)
Upton, *tu.* firſt th. after midlent, th. in whit week, july 10, th. before St. Matthew, ſep. 21 (101)
Shipton, *ſ.* june 22, tu. after oct. 10 (75)
Dudley, *ſ.* may 8, aug. 5, oct 2, (116)

YORKSHIRE

Is a maritime county, and much the largeſt in all England; and is divided into three parts called Ridings, viz. north. eaſt and weſt: It is in general a plentiful county, abounding in corn, cattle, fiſh and fowl, and famous for breeding fine ſaddle horſes. It is 320 miles in circumference, and contains 3,770,000 acres; it ſends great quantities of woollen cloth to London and elſewhere.

Market Towns and Fairs.

York, the capital, *th.* and *f.* whit monday, july 10, aug. 12, nov. 22 (192)

Hull, *tu.* and *f.* oct. 10 (169)

Rotherham, *m.* whit monday, dec. 1 (141)

Boroughbrigg, *f.* ap. 27, june 22, oct 23 (204)

Beverley, *w.* and *f.* th. before feb. 14, holy th. july 5, nov. 5 (179)

Headen, *f.* feb. 14, aug. 2, sep. 25, nov. 17 ( )

Knaresborough, *w.* w. after jan. 24, w. after march 12, may 6, w. after aug. 12, m. after oct. 10, dec. 13 (175)

Rippon, *th.* th. after jan. 24, th. after march 21, may 12, 13, holy th. 1st th. after aug. 22, nov. 22 (290)

Scarborough, *th.* holy th. nov. 22 (204)

Richmond, *f.* f. before palm sunday, 1st f. in july, sep. 14 (262)

Malton, *f.* f. before palm sunday, f before whitsunday, oct. 10, 11 (199)

Northallerton, *w.* feb. 13, may 4, oct. 2 (229)

Thirsk, *m.* shrove m. ap. 4, 5, 6, aug. 3, 4, 5, oct. 28, 29, dec. 14 (199)

Leeds, *tu.* and *f.* july 10, nov. 8 (181)

Hallifax, *f.* june 24 ( )

Aberforth, *w.* last w. in ap. ditto in may, ditto in oct. w. after oct. 18 (191)

Doncaster, *f* ap. 5, aug. 5 (155)

Bedal, *tu.* easter tu. whit tu. july 5, 6, oct. 10, 11, tu. sennight before Christmas, (191)

Bautre, *f.* holy th. nov. 22 (147)

Gisborough, *m.* 3d m. and tu. after ap. 11, tu. in whitsun week, aug. 26, 27, sep. 19, 20, 1st m. after nov. 11 (214)

Wakefield, *th.* and *f.* july 4, 5, nov. 11, 12 (171)

Selby, *m.* easter tu. june 22, oct. 10 (172)

Sheffield, *tu.* tu. after trinity sunday, nov. 28 (140)

Helmsly, *f.* may 19, july 16, oct. 2, nov. 26 (197)

Howdon, *f.* 2d tu. in jan. tu. before march 25, 2d tu. in july, oct. 2 (173)

Kilham, *th.* aug. 21, nov. 12 (198)

Kirbymoreside, *w.* whit w. sep. 18 (198)

Masham,

Maſham, *tu.* ſep. 17, 18 (207)
Otley, *tu.* aug. 1, nov. 15 (175)
Pickering, *m.* holyrood day, ſep. 14 (226)
Pocklington, *f.* feb. 24, ap. 25, july 24, oct. 28 (183)
Ripley, *m.* aug. 25, 26, 27 (183)
Settle, *th.* tu. before palm ſunday, th. before good friday, and every other friday before whitſunday, ap. 26, aug. 18 to 21ſt, 1ſt tu. after oct. 27 (200)
Sherbourn, *f.* oct. 6 (176)
Snathe, *f.* 1ſt f. in ap. aug. 10, 1ſt f. in ſep. (175)
Weatherby, *th.* holy th. aug. 5, nov. 22 (177)
Weighton, *w* may 14, ſep. 25 (181)
Pontefract, *f.* St. Andrews fair, 1ſt f. in dec. twenty day fair, 1ſt f after the 20th day from Chriſtmas, candlemas fair, 1ſt f. after feb. 13, St. Giles's fair, 1ſt f. after ſep 12, all the other moveable fairs, *viz.* palm ſunday, low ſunday, trinity ſunday, to be held on the ſaturdays before each of thoſe days reſpectively. Fortnight fairs will be held on the ſaturday next after York fortnight fairs, as uſual (169)
Barnſley, *w.* laſt w. in feb. preceeding the 28th, if w. be 28, to be held the w. before, may 12, oct. 10 (259)
Askrig, *tu.* may 11, 1ſt th. in june, oct. 28, 29 (251)
Bradford, *th.* mar. 14, 15, june 28, 29, 30, dec. 20, 21, 22 (183)
Bridlington, *f.* monday before whitſuntide, oct. 21 (205)
Eaſingwould, *f.* july 5, ſep. 25 (186)
Huddersfield, *tu.* may 24 (161)
Middleham moor, *m.* nov. 6, 7, june 24 (252)
Patrington, *f.* march 28, july 18 (171)
Skipton, *f.* march 23, palm ſunday eve, eaſter eve, 1ſt 2d and 3d tu. after eaſter, whitſun eve, aug. 5, nov. 20, 22 (221)
Stokeſley, *f.* f. before trinity ſunday (217)
Thorne, *w.* firſt m. tu. and w. after june 11, the ſame after oct. 11 (161)
Yarm, *th.* th. before april 5, holy th. aug. 2, oct. 9 (212)

The Principality of WALES.

WALES was originally independant on England, but it was incorporated with it, in the reign of king Henry the VII. This country is very mountainous and barren, except in the vallies and intervals, where it yields plenty of grass and corn. The situation is westward, bordering on the Irish sea; the air bleak and sharp, but wholesome; the cattle are numerous, but small; on the hills there are goats in abundance. This country is divided into north and south, *viz.*

NORTH WALES

Contains Anglesey, Carnarvonshire, Denbighshire, Flintshire, Merionethshire, and Montgomerishire.

ANGLESEY

Is an island in the north-west part of the country, about 80 miles in compass, and contains about 200,000 acres.

Market Towns and Fairs.

Beaumaris, *w.* and *s.* feb. 13, holy th. sep. 19, dec. 19 (241)
Llannerchymead, *w.* feb. 5, apr. 25, St. Mark, may 6, th. after trinity ( )
Newburgh, *tu.* june 22, aug. 10, 21, sep. 25, nov. 11 ( )

CARNARVONSHIRE

Is a sea coast county, 110 miles in compass, containing about 340,000 acres.

Market Towns and Fairs.

Caernarvon, *s.* feb. 25, may 16, aug. 4, dec. 5 (251)
Cricceith, *w.* may 23, july 1, oct 18 (241)
Newin, *s.* ap. 4, s. before whitsuntide aug. 25 (241)
Aberconway, *s.* ap. 6, sep. 4, oct. 10, nov. 8 (229)
Bangor, *s.* ap. 5, june 25, oct. 28 (236)
Pwlhely, *w.* may 13, aug. 19, sep. 24, nov. 11 (212)

DEN-

DENBIGHSHIRE

Is 116 miles in circuit, and contains about 410,000 acres,

Market Towns and Fairs.

Denbigh, *w.* may 14, july 18, ſep. 25 (209)
Abergely, *ſ.* apr. 2, day before holy th. aug. 20, oct. 19 ( )
Llanwſt, *tu.* ap. 25, june 21, aug. 9, ſep. 17, dec. 11 ( )
Ruabon, *m.* laſt f. in feb. may 22, nov. 20 ( )
Ruthin, *m.* mar. 19, f. before whitſunday, aug. 8, ſep. 30, nov. 10 (183)
Wrexham, *m.* and *th.* march 23, holy th june 6, ſep. 19 ( )

FLINTSHIRE

Contains about 160,000 acres, and is in circuit 82 miles.

Market Towns and Fairs.

St. Aſaph, *ſ.* eaſter tu. july 15, oct. 16, dec. 26 (212)
Holywell, *f* ap. 23, tu. after trinity, ſep. 2 ( )
Mold, *w.* feb. 13, mar. 21, may 12, aug. 2, nov. 22 ( )
Newmarket, *ſ.* laſt ſ. in ap. 3d ſ. in july, 4th ſ. in oct. 2d ſ. in dec. ( )

MERIONETHSHIRE

Is 180 miles in circuit, and contains about 500,000 acres.

Market Towns and Fairs.

Dinaſmondly, *ſ.* june 2, ſep. 10, oct. 1, nov. 13 (176)
Doligeily, *tu.* may 11, july 4, ſep. 20, oct. 9, nov. 22, dec. 16 ( )
Harloch, *ſ.* th. after trinity, june 30, aug. 21, dec. 11 (193)

MONTGOMERISHIRE

Is in compaſs 94 miles, contains 560,000 acres.

Market Towns and Fairs.

Llanidloes, *ſ.* firſt ſ. in ap. may 11, july 17, firſt ſat. in ſep. oct 28 (157)

Llan-

Llanvylling, *th.* firſt w. before eaſter. may 24, june 28, oct. 5 (156)

Machinleth, *m.* may 16, june 26, july 9, ſep. 18, nov. 25 (183)

Montgomery, *th.* march 26, june 7, ſep. 4, nov. 14 (158)

Poole, *m.* 2d m. in march, firſt m. before eaſter, june 5, firſt m. after St. Peter, june 29, ſep. 12, nov. 16 ( )

SOUTH WALES

Contains Brecknockſhire, Cardiganſhire, Carmarthenſhire, Glamorganſhire, Pembrokeſhire, and Radnorſhire.

BRECKNOCKSHIRE

Is 106 miles in circuit, contains about 620,000 acres.

Market Towns and Fairs.

Brecknock, *w.* and *ſ.* may 4, july 5, ſep. 10. nov. 17 (161)

Builth, *m.* june 27, oct. 2, dec. 6 (157)

Crickhowel, *th.* may 12 (148)

Hay, *th.* may 17, aug. 12, oct. 10 (150)

CARDIGANSHIRE

Is 94 miles in compaſs, contains about 520,000 acres.

Market Towns and Fairs.

Cardigan, *tu. ſ.* feb. 13, ap. 5, ſep. 8, dec. 19 (197)

Lampeter, *tu.* whit wedneſday, july 10, firſt monday in aug. ditto in ſep. oct. 19, 1ſt m. in nov. (175)

Llannarth, *tu.* ſept. 22 ( )

Tregarron, *th.* mar. 15, 16, 17 (171)

CARMARTHENSHIRE

Is 120 miles in compaſs, containing about 700,000 acres.

Market Towns and Fairs.

Carmarthen, *w.* and *ſ.* june 3, july 10, aug. 12, ſep. 9, oct 9, nov. 14 (206)

Kid-

Kidwelly, *tu* may 24, july 22, oct. 29 (222)
Llanelly, *th.* aſcenſion day, ſep. 30 (214)
Landovery, *ſ.* july 31, w. after Ephiph, w. after low eaſter, whit tu. w. after oct. 10, nov. 26 (184)
Landiloe, *tu.* june 21 (193)
Newcaſtle, *ſ.* june 22, july 18, nov. 22 (221)

GLAMORGANSHIRE

Is 112 miles in circuit, contains about 540,000 acres.

Market Towns and Fairs.

Bridgen, *ſ.* nov. 17, holy th. ( )
Cardiff, *w.* and *ſ.* june 29, ſep. 8, nov. 30 ( )
Caerphilly, *th.* ap. 5, june 6, july 19, aug. 25, oct. 9, nov. 16, th. before Chriſtmas, th. before jan. 25, firſt th. in march, firſt th in may (155)
Cowbridge, *tu.* ap. 23, aug. 1, oct. 18, (175)
Landaff, *m.* feb. 9, whit monday, (146)
Neath, *ſ.* trin. th. july 13, ſep. 12 ( )
Penrice, th. may 17, july 17, ſep. 17, dec. 1 (187)
Swanzey, *w. ſ.* july 13, aug. 26, oct. 19 and two following ſaturdays (202)

PEMBROKESHIRE

Is 93 miles in compaſs, contains about 520,000 acres, and is famous for an harbour, called Milford Haven.

Market Towns and Fairs.

Haverfordweſt, *tu. ſ.* may 12, june 12, July 18, ſep. 4, ſep. 24, oct. 18 (254)
Kilgarren, *w.* aug. 21, nov. 12 (189)
Narberth, *w.* march 21, june 4, july 5, ſep. 26, dec. 11 ( )
Newport, *ſ.* june 27 ( )
Pembroke, *ſ.* may 14, trin. m. july 10, ſep 25 (214)
Tenby, *w.* and *ſ.* whit tu. may 4, july 20, oct. 20, dec. 4 (208)
Whiſton, *ſ.* nov. 8, (191)

RAD-

RADNORSHIRE

Is in circuit 90 miles, and contains about 310,000 acres.

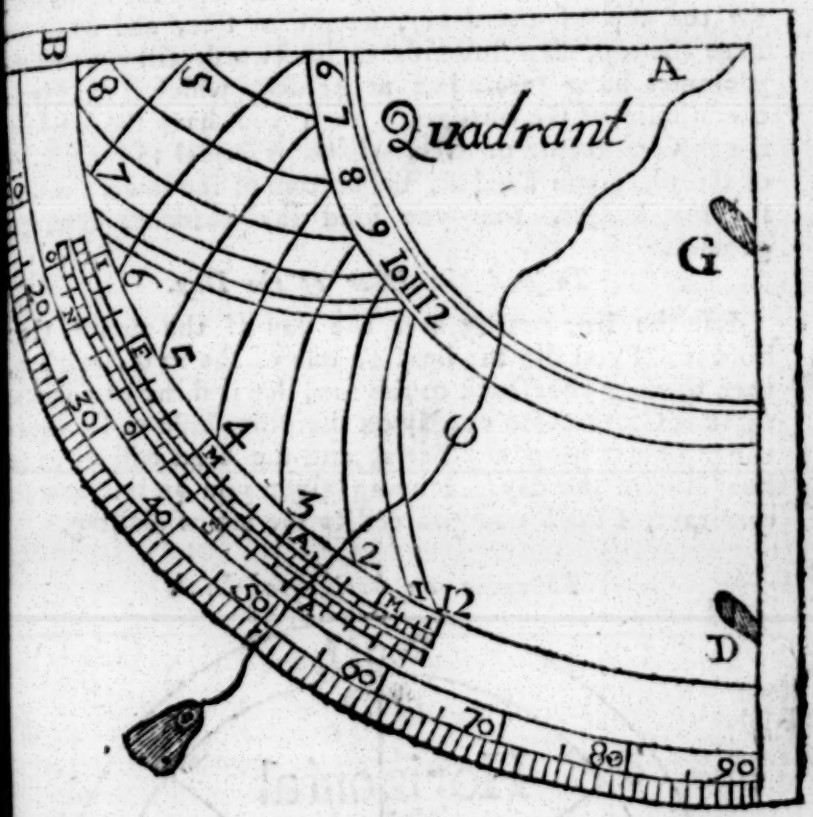
Market Towns and Fairs.

Knighton, *th.* may 6, ſep. 21 (146)
Preſteign, *ſ.* june 24, nov. 30 (148)
Radnor, *th.* oct. 29 (149)
Rhayador, *w.* aug. 6, 27, ſep. 26 ( )

Note, The reader is deſired to take notice, that where he meets with ( ) not filled up, that the diſtance of miles from London were never yet aſcertained for a certainty.

Having gone thro' the market towns of England and Wales, with their market days, fair days, and diſtance of miles from London, with the utmoſt care and circumſpection, I need not recommend this uſeful part of the book to my readers, whoſe end it may ſerve, as I preſume it will ſufficiently anſwer for itſelf. My plan has differed greatly from my former Edition, for now *All* the market towns, *&c.* are here inſerted, that the reader cannot miſs of finding the whole of them, each under their diſtinct counties.

Before I proceed to dialling I ſhall ſhew you the uſe of the inſtrument called a QUADRANT, with the deſcription as here drawn.



This quadrant is uſed ſeveral ways, and on ſundry accounts, *viz*, to take heights and diſtances either acceſſible or inacceſſible, to find the hour of the day, &c. But firſt of all I ſhall give a deſcription of the quadrant, as follows, viz. the firſt or outward arc (being the fourth part of a circle) is divided into 90 parts or degrees, and figured from 10, 20, 30, &c. to 90. Above thoſe figures are the letters I, F, M, A, &c. ſignifying the 12 calendar months of the year, as I for Janaury, F for February, &c. Above thoſe letters for the months are lines and figures to know the hour of the day. Laſtly, in the centre or point of the quadrant, *viz.* at A is fixed a line of ſilk, through a hole at the end thereof is a plummet of lead; and alſo in the middle thereof is a ſmall bead. I now come to its uſe

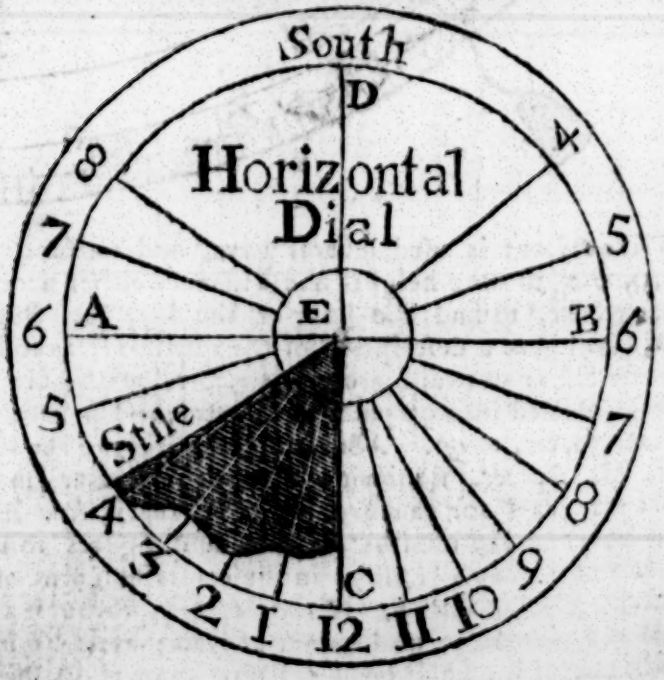
Of Heights.

Suppoſe you would know the height of a tower, ſteeple or tree; hold up the quadrant, and through the ſights look for the top of the tower, ſteeple or tree, and when you have the top, ſtep forwards or backwards till you find the plummet hang freely juſt at 45 deg. which is exactly in the middle of the quadrant; then you have the height of the tower, ſteeple or tree, which is equal to the diſtance of the place you ſtand at, the bottom of the tower; adding for the height, that you hold the quadrant from the ground.

To find the Hour of the Day.

Lay the line exactly over the day of the month, there hold it till you ſlip the bead on one of the 12 o'clock lines, then turning your back to the ſun, let it ſhine through the ſight at G, to come exactly on the other hole at D, letting the plummet hang at liberty, and the bead will reſt on the hour line of the day. Having given you an inſight of the quadrant, I ſhall now proceed to the art of dialling.

To make an horizontal Dial.



FIRST draw a line with a ruler, and the point of the compasses, as A B; then cross it at right angles with another line, as the line C D, which is the meridian, or 12 o'clock line, and the line A B the 6 o'clock line; then opening the compasses, place one foot at the beginning of the degrees, or the arc edge of the quadrant, and extend the other foot to sixty degrees, or you may take it from the line of chords in the plain scale, with that extent, set one foot in the centre of the dial at E, where the two first lines cross one another, and draw the circle ABCD.

Next, having the 12 o'clock line E C, to know what distance must be set off from it for 1 o'clock, and 11 o'clock being all one, be directed by the following small table, *viz.*

52°		Lat.
D.	M.	Hours.
11	55	1 — 11
24	26	2 — 10
38	13	3 — 9
53	44	4 — 8
71	9	5 — 7

In the first column against 1 hour and 11, you find 11 degrees and 55 minutes, which take off the edge of the quadrant, by setting one foot of the compass at the beginning of the divisions under B, and the other foot to 11 degrees, 55 minutes: The compasses so opened, set one foot in the circle at the bottom of the twelve o'clock line, and with the other foot of the compasses, make a mark in the circle both towards A and B, and from those two marks draw lines towards the center, which you may afterwards go over with ink. Then to make the hour lines from 2 to 10 o'clock, look in the table for 2 and 10 hours, where you will find 24 degrees and 26 minutes, which take off the degrees of your quadrant, and mark as the other from the 12 o'clock line, both ways in the circle.

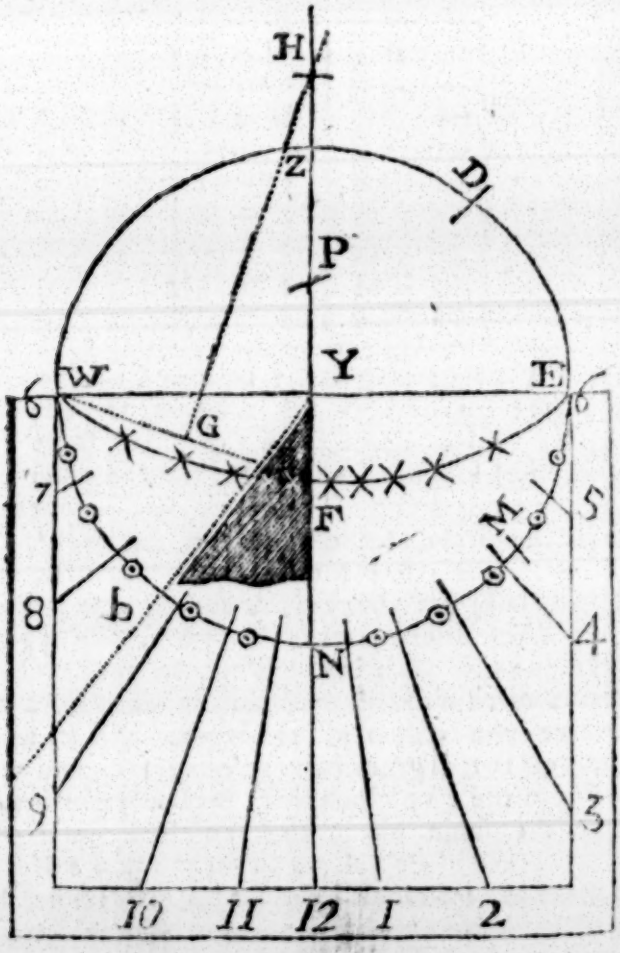
Observe the same for 3 and 9 o'clock, and 4 and 8 o'clock, and 5 and 7 o'clock; and for the hours of 5 and 7, 4 and 8 above the 6 o'clock line, set off the distance below.

Then for the height of the gnomon or stile, which must be always equal to the latitude of the place where your dial is

to be uſed, as ſuppoſe 52 degrees, take it off the edge of the quadrant with the compaſſes as before; and with that extent, ſet one foot at the bottom of the 12 o'clock line, as you did before, and extend the other foot in the circle, and make a mark and draw a line from thence to E, the centre (for the edge, as you may ſee in the dial, is ſhaded with ſhort lines) but the ſtile is to ſtand upright in the 12 o'clock line, and it will caſt a ſhadow upon the hour of the day.

To make an erect South Dial.

Thoſe are ſaid to be erect or upright, which ſtand perpendicular to the horizon of the place; ſuch as are againſt the walls of churches, ſteeples, &c.



First

First draw the cirle Z E W N, then croſs it with Z, Y N for the meridian or 12 o'clock line, and W Y E for the prime vertical circle or hour line 6; then out of your line of chords, take 38 degrees, 29 minutes (the compliment of the latitude of the place) and ſet that diſtance on the dial plane from Z to d, and from E to m, and from N to b:

Then lay a ruler from W to d, and it will cut the meridian Z N in the point P, the pole of the world; and a ruler alſo laid from W to M, will cut the meridian in F, which is the point through which the equinoctial muſt paſs, for the drawing of which, you have 3 points given, *viz.* E F and W to find the center, which muſt always be in the meridian line Z N.

To find the center; firſt draw a line from F to W, then upon that line raiſe a perpendicular as the line G H, to cut the meridian line in H; again, divide the ſemi circle E N W in equal parts, as the points o o o &c.

Then lay a ruler to Y, and each of the points o o o, &c. and the ruler will croſs the equinoctial circle in the points, * * *, &c. dividing that into 12 unequal parts.

Again, lay a ruler to P (the pole of the world) and every one of the marks * * *, &c. and the ruler will croſs the circle of the plane in the points | | |, &c.

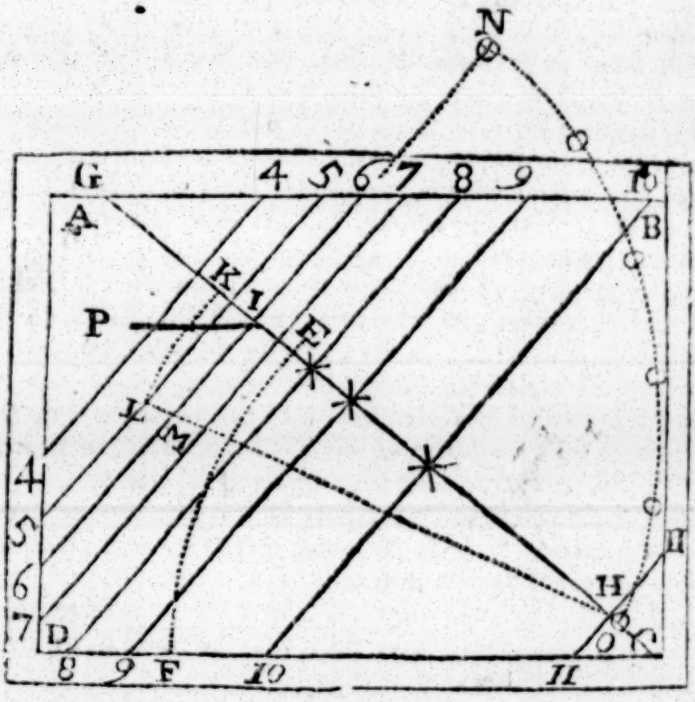
Laſtly, if through the center Y, and the reſpective point | | |, &c. you draw lines, they will be true hour lines of an erect ſouth plane.

For the gnomon or ſtile, take 38 degrees, 29 minutes, out of the line of chords, and ſet them from N to b, drawing the line Y b for the axis of the ſtile, which muſt hang directly over the meridian or hour line of twelve, and point downwards to the ſouth pole; becauſe the plane beholds the ſouth part of the meridian.

In making this dial, you make two dials; for the erect direct north dial is but the backſide of the ſouth; for as this beholdeth the ſouth part of the meridian, ſo the other faceth the north part of the meridian; and as the meridian line in the ſouth dial ſhews when it is twelve o'clock at noon, ſo the backſide thereof, *viz.* the north ſide, repreſents the hour line of 12 o'clock at midnight. but a north dial is almoſt uſeleſs, becauſe the ſun is never ſeen by us above the horizon, only at the hours of 4, 5, 6, 7, and 8

in the morning, and 4, 5, 6, 7 and 8 at night, and (in this latitude) not all of them neither; therefore I think it needleſs to trouble the reader with it.

A direct eaſt Dial in the Latitude of 51 deg. 31 min.



Admit A B C D to be the dial plane, on which is to be drawn a direct eaſt dial, which muſt be upon the point C; but if a weſt dial, upon the point D. Firſt with the radius (or chord of 60 degrees) deſcribe the obſcure arc E F, then from the chords take 38 deg. 29 min. the compliment of the latitude of the place, and ſet from F to E, and draw the line C E quite through the plane to G; then that you may proportion the ſtile to the plane, ſo that you bring on all the hours from ſun-riſing to eleven o'clock, aſſume any two points in the line C G, one towards the end C (as the point H) for the hour line of 11, and another about three quarters the length of the line, as the point I for the hour line of 6; and through the point H and I, draw the lines 11 H 11, and 6 I 6. On the point H with

H with the chord of 60 degrees, deſcribe the obſ ure arc K L, then with the compaſſes take 15 degrees from the chords, and ſet one foot in K, and with the other cut the arc K L in L. Through H and L draw the line H M L, which will cut the line 6 I 6 in the point M, ſo ſhall M I be the height of the perpendicular ſtile, proportioned to this plane.

To draw the hour lines, open the compaſſes to the chord of 60 deg. and ſea one foot in M, and with the other deſcribe the arc N O, between the hour line of 6 and the line H L; and divide the ſaid line into 5 equal parts, as the points o o o, &c. Then laying a ruler from the point M, to each of the points o o o, &c, it will cut the equinoctial line G H in the points * * *, &c. through which points draw lines parallel to 6 I 6, as the line 7 * 7, 8 * 8, &c. As for the hourlines 4 and 5, they are eaſily done, thus, lay off the ſame diſtance from 6 to 5, as from 6 to 7: and for the diſtance between 5 and 4, lay of the ſame diſtance as from 7 to 8, and it is done.

The ſame dimenſions ſerve for a weſt dial, only the arc F E muſt be drawn on the left hand of the plane, and the hour lines 4, 5, 6, 7, 8, 9, 10, 11 on the eaſt dial, muſt be 8, 7, 6, 5, 4, 3, 2 and 1, on the weſt.

The ſtile of the eaſt or weſt dial, may be either a pin of the length of the line I P. which is equal to I M, and muſt be fixed in the point I on the hour line of 6, and exactly perpendicular to the plane; or it may be a plate of braſs of the ſame breadth, with the diſtance of the hour lines of 6 and 3, which likewiſe muſt be ſet perpendicular upon the hour line of 6, and the ſhadow of the upper edge thereof will ſhew the hour.

Of Beautifying and Colouring Dials.

FIRST, the boards are to be bruſhed over with Linſeed oil, thinly ground with Spaniſh brown, done over three or four times (drying between each time) a little thicker each time with the colour; and this is called priming.

To make the fat Oil for Dials.

Boil red lead and linſeed oil, and a little litherage of gold (about a penny-worth) together, till almoſt at thick as ſyrup; and when cold and well ſettled, pour the cleareſt into a bottle or bladder for uſe.

The

The Gold Size for Dials.

Mix fine ground yellow oaker with the aforesaid fat oil, to such a consistency, as when used, it may settle smooth of itself.

A Mixture for Hour Lines.

Grind Vermillion or Lamp-black with the fat oil.

To draw golden Letters or Figures for the Hours.

First draw them with a pencil dipt in the gold size before mentioned; which when so dry as just to stick to your fingers, then with a smooth-edged pen-knife shape your leaf gold to your mind; take it up with a piece of cotten cloth, fixt to the end of a stick, and lay it on the size, pressing it down with the same cotton, and, when dry, brush off the loose gold with a feather, and smooth the rough edges of the letters with a pencil dipped in red or black colour.

Of mixing Colours.

Colours are mixt by being ground on a stone with fair water severally, and dried, and kept in paper bags for use, except Lamp-black, Saffron, Smalt, Gambogia, and Sap-green.

Blue, to compound; temper a little Indigo and Smalt with oil.

A light blue; mix Smalt and White-lead together.

Lead colour; mix Lamp-black and White-lead together on a marble.

A Fox colour; is Umber burnt.

Gold colour; is Orpiment mixt with fat oil, by a knife on an earthern plate, or gally tile rather.

To hinder colours from cracking, put oil of walnuts to them.

Yellow colour; beat Saffron to powder, and steep it in vinegar.—Or take the yellow chives in white lillies and Gum-water mixt for writing.

Red; Vermillion with Gum-water mixt for writing.

Golden letters, to write; mix Vermillion and Gum Armoniac with yolks of eggs.

A choice

A choice COLLECTION of Curious RECEIPTS.

An excellent Drink for a Cough.

TAKE two ounces of saſſafras, two ounces of linſeed, two ounces of ſtick liquorice, and two ditto of brown ſugar candy; boil all together in a gallon of water, till it decreaſes to three pints. Drink a draught in the morning faſting, or as often in the day as you like.

To fine down a Caſk of foul Wines.

Take ½ of a pound of maſons duſt, the white of four eggs, or in proportion; beat it well up together, and pour it into your caſk; let the bung remain off about ten minutes, and then ſtop it down.

A never failing Receipt to cure a Cough, or prevent a Conſumption.

Take ground-ivy freſh gathered, and bruiſe it in a mortar, till you extract three ounces of juice, to which add two ounces of brown ſugar-candy; ſimmer it over a ſlow fire, and ſkim it till it be fine; let it ſtand till clear, and bottle it off for uſe. Take a table ſpoonful night and morning.

A certain Cure for the moſt ſevere Flux.

Take a quantity of water creſſes, and boil them in clear water for fifteen minutes, ſtrain them off, and drink half a pint of the decoction every now and then, about milk-warm.

A never-failing cure for the Hic-cough.

A ſingle drop of chymical oil of cinnamon, dropt on a piece of treble-refined ſugar; let it diſſolve in the mouth leiſurely.

An approved Method of taking away any Scale or Film from the Eyes.

Borax muſt be finely pounded in a marble mortar, and a ſmall quantity thereof blown into the eye every morning and evening; it will eat away the ſpeck or film, and not in any wiſe injure the humours of the eye.

To

To deſtroy and prevent Bugs and other Vermin.

Mix, with the ſolution of vitriol, the pulp of coloquintida, and apply the mixture to all the crevices, which ſerve as a nurſery to vermin; the ſolution alone has proved effectual; but if applyed to ſtone or brick walls, it may be mixed with lime, which will give it a lively yellow, and inſure its ſucceſs. The boiling any kind of wooden work in the ſolution of vitriol, effectually prevents it from taking the worm, and preſerves it from rottenneſs and decay.

To gild with Leaf-gold.

Grind leaves of gold in a few drops of honey; add to it a trifle of gum water, and it will be excellent to write or paint with.

To make fine red hard Sealing Wax.

Take half a pound of ſhell or gum lack, melt it in an earthen veſſel; then put an ounce and an half or two ounces of purely ground fine vermillion; mix them well over the fire, and when it is of a fit compoſition, make it up into balls or cakes; and to ſet a gloſs upon it, heat it gently over a charcoal fire, and rub it with a cloth till it is cold.

How to make black Wax.

Mix ivory black with ſhell or gum lack, as by the foregoing receipt.

An approved Cure for the Rheumatiſm.

Take five ounces of ſtone brimſtone, reduce it to a fine powder, divide it into 14 equal parts, and take one part every morning faſting, in ſpring water. Note, this receipt came from a worthy clergyman; he ſaid it had, to his certain experience, a very good effect upon great numbers of people that made uſe of it.

Againſt Moths, Worms, &c.

Dry the herb Botris, ſtrew it among your clothes, and neither moth nor worm comes near them.

Ague ſpeedily cured.

Wear the leaves of lignum vitæ under your feet a few days, and a cure ſoon follows. This receipt from a divine.

Dr.

Dr. Dover's *excellent Cure for the Itch.*

Sweet ſublimate one drachm, cream of tartar one ounce: Let theſe infuſe two or three days in a pint of ſpring water; then bathe the parts broke out therewith, morning and evening, for four or five days, and the cure will be completed. This is not only very effectual in curing, but very ſafe, cheap and clean. Bleeding is very neceſſary in this diſorder. *N. B.* This is the chymical lotion advertiſed at 1s. 6d. the bottle, which contains little more than a quarter of a pint; here you have a pint for three pence, which is the charge of the two ingredients.

Warts or Corns ſpeedily deſtroyed.

Rub them with juice of houſe-leak and celandine, twice a day for a week, and you may depend upon getting rid of them: If the corns are firſt cut as cloſe as the perſon can bear, they will the ſooner be deſtroyed. Multitudes have been taken away by only binding a ſingle leaf of houſe leak over each corn, and this in four or five days, and without the leaſt pain.

Chineſe Method of mending China.

Boil a piece of white flint glaſs in river water five or ſix minutes, beat it to fine powder, and grind it well with the white of an egg, and it joins china (without rivitting) ſo that no art can break it again in the ſame place. You are to obſerve the compoſition is to be ground extreamly fine, on a painter's ſtone.

A ſure and ſpeedy Cure for the Scurvy.

Drink plentifully of whey, with juice of elder flowers in it, and a cure will ſoon be compleated.

Infallible Cure for a Whitlow.

Steep it in diſtilled vinegar: hot as you can bear it, four or five times a day, for two days ſucceſſively; then moiſten a leaf of tobacco in the ſaid vinegar, bind it round the part grieved, and a cure ſoon follows.

To ſtop bleeding at the Noſe.

Rub the noſtrils with the juice of nettles, or young nettles bruiſed.

Having

Having gone through the neceſſary Inſtructions for Youth, ſo as to complete him for Buſineſs, I think it now neceſſary for him to apply his mind to hiſtory, in order the better to qualify him for company and converſation: And as no one hiſtory in the world abounds with ſuch variety of incidents as the hiſtory of England, I have taken the pains to render this ſo conciſe and intelligent *to the youthful reader, as muſt, by very little application, make him able to diſcourſe upon the moſt material parts; and as it is ſolely* calculated *for the knowledge and inſtructions of youth, care has been taken to avoid thoſe immaterial and obſolete parts of hiſtory that bear no ſort of reference to our preſent deſign.*

ENGLAND and Scotland, though but one iſland, are two kingdoms, which were united in the reign of king James I. and called Great Britain. The ſhape of it is triangular, and ſurrounded by the ſeas; its utmoſt extent or length is 812 miles, its breadth 320, its circumference 1836 miles; and is reckoned the fineſt iſland in Europe.

The whole iſland was originally called Albion. The people that firſt lived in this iſland were the Gauls, and afterwards the Britains, ſo named by Brutus, a Grecian hero, who having landed here about 1100 years before Chriſt, changed its antient name of Albion to Britannia; from which time to the arrival of Julius Cæſar, there had reigned 69 kings, all natives of England.

They were generally tall and well made, and lived frequently to 120 years, owing to their ſobriety and temperance, and the wholeſomeneſs of the air. Clothes were not known among them; but they uſed to cover themſelves with ſkins, to avoid giving offence to thoſe who trafficked with them. Their bodies they painted with juice of woad and lived in huts covered with ſkins and boughs of trees: Their towns or villages were a confuſed parcel of huts, at a little diſtance from each other, without order or diſtinction of ſtreets. Friends and brothers lived together, and had their wives in common. They had great quantities of fiſh, and tame fowl which they kept for pleaſure, and were forbid by their religion to eat; but lived chiefly upon milk and game caught in the woods. Their chief commerce was with the Phœnician merchants, who, after the diſcovery of the iſland, exported every year great quanti-

les of tin, with which they drove a very gainful trade with diſtant nations.

In this ſituation remained the antient Britains, till Julius Cæſar, the firſt Roman emperor, formed a deſign of invading their iſlands. The Britains endeavoured to divert him from his purpoſe, by ſending ambaſſadors with offers of obedience, which he refuſed; and in the 55th year before the coming of Chriſt, embarked a number of troops on board eighty ſhips. The Britains boldly and vigorouſly endeavoured to prevent his landing, but being overpowered by numbers, and loath to expoſe themſelves to greater miſchiefs, ſent to ſue for peace, and offer hoſtages, which Cæſar accepted, and concluded the peace after four days landing. In reſpect to the Roman period, Cæſar's landing from Gallia made it tributary to the Romans. But ſoon after the birth of Chriſt, the emperor Claudius brought this country under his ſubjection; and after the Romans had been in poſſeſſion of Britain for near 500 years, they left it to its antient inhabitants again. In the beginning of the 2d century, the Chriſtian religion was planted in England; and in the 5th century the Britains finding themſelves overpowered by the Scots and Picts, called over the Saxons to their aſſiſtance, who were ſo charmed with the country, that they determined to continue here and ſubdue it. They divided the country among themſelves into ſeven kingdoms, known by the name of the Saxon heptarchy, *viz.* 1ſt. Kent, 2d. Eſſex, 3d. Suſſex, 4th. Weſſex, 5th. Eaſt Anglia, 6th. Mercia, 7th. Northumberland. But at length Weſſex, or the Weſt Saxons who had for their king Egbert, in the year 827, reduced the other kings of the heptarchy and ſettled the Engliſh monarchy. He was crowned king of England at Wincheſter, and continued the conquered kings as vice-roys or tributaries. In his reign England was invaded by an army of 230000 Danes, but he forced them at laſt to leave him in quiet poſſeſſion. After a reign of 11 years he died, and was buried at Wincheſter, where he held his royal ſeat.

831. ETHELWULPH, Egbert's ſon, was biſhop of Wincheſter when the crown fell to him, and could ſcarcely be prevailed upon to accept it. He was a great votary to the papal ſee, and a good friend to the clergy. He went in pilgrimage to Rome, confirmed the tax called Peter's

Pence, and made part of England tributary to the Pope. His reign was disturbed by the Danes, but he conquered them at Okely. He reigned 17 years, and left 4 sons who all succeeded to the crown, viz. Ethelbald, Ethelbert Ethelred and Alfred.

855. ETHELBALD, who married Judith his mother-in-law, reigned only five years. He had the good fortune to be too hard for the Danes; and was buried at Salisbury.

860. ETHELBERT, his brother, succeeded him. He was a virtuous prince, much troubled by the Danes, tho often victorious over them. He reigned but six years, and was buried at Sherborn.

866. ETHELRED, brother of Ethelbert, fought nine set battles in one years time with the Danes, whose cruelty spared neither age nor sex; they burnt York and abundance of monasteries. This king reigned but six years, and was buried at Winburn in Dorsetshire.

872. ALFRED, the surviving brother, proved a most excellent prince and fond of learning; but being near conquered by the Danes, by stratagem he at length over-came them near Abington. Having rid himself of those troublesome guests, he made justice and learning flourish in the land. He divided England into shires; and founded the university of Oxford. After reigning 29 years he died and was buried at Winchester.

901. EDWARD, surnamed the elder, was son of Alfred and had a sister named Alfreda, a martial princess. who assisted him in his quarrel with the Danes, whom he massered. He reigned 23 years, and was buried at Winchester.

924. ATHELSTAN, son of Edward, succeeded his father. He proved a magnanimous prince, and was courted by most princes of Europe. He vanquished the Danes, and drove them into Northumberland. He subdued Wales and made it tributary. Cornwall and the isles of Scilly were by him annexed to the crown. Guy of Warwick lived in his reign, who slew Colbrand the Danish Goliah. In his time also the bible was translated into English Saxon. He reigned 16 years, died at Glouceſter, and was buried at Malmsbury.

940. EDMUND, sirnamed the pious, brother of Athelstan, was in his reign insulted by the Danes, but by the assistance of the king of Scots, they were totally defeated.

Edm

Edmund recompenſed that king with the counties of Cumberland and Weſtmoreland, which remained in the hands of the Scots till Henry II. He was aſſaſſinated as he was feaſting among his nobles, by one Leof, whom he had baniſhed; and was buried at Glaſtonbury, leaving two infant ſons, Edwin and Edgar, who were both ſet aſide to make room for their uncle.

948. EDRED uſurping the crown from his nephews, reigned but ſeven years, and was buried at Wincheſter.

955. EDWIN, Edmunds eldeſt ſon, ſucceeded his uncle. He proved a bad prince. He baniſhed Dunſtan, abbot of Glaſtenbury, who got him depoſed, which cauſed him to die with grief, after a reign of four years. He was buried at Wincheſter.

959. EDGAR, Edmund's youngeſt ſon, ſucceeded his brother at the age of 16. He recalled Dunſtan from baniſhment, and advanced him to the ſea of Canterbury. Having reigned 16 years, he was buried at Glaſtonbury.

975. EDWARD, ſirnamed the martyr, a natural ſon of Edgar, uſurping the crown from his brother Ethelred, a lawful ſon of Edgar, by Alfrida his queen; reigned but three years, being aſſaſſinated by order of his mother-in-law at Corf caſtle, to make way for Ethelred. He was canonized ſome time after, and ranked among the martyrs.

978. ETHELRED, ſirnamed unready, lawful ſon of Edgar by Elfreda, was ſo harraſſed by the Danes, that he paid them yearly tribute of 40,000 l. The Danes growing ſo imperious and burdenſome, living upon free quarter, Ethelred cauſed 24000 of them to be maſſacred in one night: which bloody ſcene drew upon him the reſentment of Sweyn, king of Denmark, who came over in perſon with a fleet and land forces, followed by a reinforcement commanded by his ſon Canute. Ethelred fled beyond ſea to the duke of Normandy, and left his ſubjects to the mercy of the invaders; but on the death of Sweyn returned home, died ſoon after, and was buried at Glaſtonbury.

1016. EDMUND, ſirnamed Ironſide, from his great ſtrength, Ethelred's ſon, contended for the crown with Canute the Dane, and after much blod-ſhed on both ſides, agreed to decide the battle by ſingle combat. Canute being wounded, agreed to divide the kingdom between them. The ſouth of England fell to Edmund, and the

north to Canute. But Edmund being ſoon after aſſaſſinated by Edrick, Canute ſeized upon the whole. Edmund reigned but 7 months, and was buried at Glaſtonbury, leaving two ſons, Edward and Edmund. He had, during his ſhort reign, given frequent teſtimonies of his exalted valour, the moſt conſummate prudence and utmoſt goodneſs.

DANISH KINGS.

1017. CANUTE being in poſſeſſion of the whole kingdom, cauſed Edrick the murderer to be beheaded. He baniſhed the ſons of Edmund; and married Emma, the widow of king Ethelred, by whom he had two ſons, Sweyn and Canute. The firſt was his ſucceſſor in the kingdoms of Denmark and Norway; and the other was ſupplanted by

1035. HAROLD I, a baſe ſon of Canute, ſurnamed Hareſoot. He proved a tyrant to queen Emma, whoſe ſon Alfred by Ethelred he treacherouſly murdered. He reigned 5 years, and was buried at Weſtminſter.

1040. HARDICANUTE, ſon of Canute and Emma, ſucceeded his ſupplanter, whoſe corpſe he cauſed to be dug out of the grave and thrown into the Thames. He was a great Epicure, and died at a wedding. He reigned but 2 years, and was buried at Wincheſter.

Thus ended with him the tyranny of the Danes in England, who oppreſſed it for above 200 years. The Saxon blood being reſtored, the Danes remained mixt with the Engliſh, and became one nation.

SAXONS Re-inthroned.

1042. EDWARD the confeſſor, Ethelred and Emma's 7th ſon, ſucceeded Hardicanute. He cauſed his mother Emma to undergo the ordeal, or fiery tryal by walking barefoot over red-hot irons. His great affection for the Duke of Normandy made way for the Roman conqueſt. In his reign he baniſhed earl Goodwin, but ſoon recalled him. He re-built Weſtminſter abbey, and dying without iſſue, after a reign of 24 years, was buried in the ſaid abbey, and afterwards canonized for a ſaint.

1066. HAROLD II, ſon of earl Goodwin, by Thyra, a baſe daughter of Canute I. ſucceeded Edward, to the prejudice

judice of the grand-child of Edmund Ironside. He did not long enjoy his usurpation, being slain 8 months after, in the battle of Hastings, between him and the duke of Normanday; which was fought October 14, 1066, nine miles from Hastings in Sussex. His body was royally interred at Waltham in Essex.

The NORMAN LINE *from* WILLIAM *the* Conqueror, *to* JAMES I. *Monarch of* Great Britain.

1066. Oct. 14. WILLIAM I. surnamed the conqueror, 7th duke of Normandy, and only son of Robert, by Arlotte, a skinner's daughter; laid claim to the crown of England, as a donation from his cousin Edward the confessor. To get possession of it, he came over with a force of 50,000 men, and landed at Pemsey in Sussex. He came like a conqueror, and reigned like a tyrant. He disarmed the English, allowed them neither fire nor candle after eight o'clock at night; built the tower of London, with several other fortresses; siezed upon all offices of honour and profit, and gave them to his Normans. He levied to the ground 36 towns and villages, with as many churches, in Hampshire, to make the new forest, in which, it is remarkable, two of his sons were killed, as they were hunting. He built Battle Abbey in the place where Harold was slain, and made the doomsday book. The severity of his reign made it very turbulent to him; when he was here, Normandy rebelled; and when there, England did the same. Scotland and Ireland gave him some disturbance, and none of his subjects could endure him. He died and was buried at Caen in Normandy, after reigning 21 years. He left three sons, viz. Robert, William and Henry.

Sep. 9. 1087. WILLIAM II. surnamed Rufus, siezed upon the crown, in prejudice of Robert his elder brother, then beyond sea. Robert coming over, matters were agreed on that William should remit him a yearly sum, and Robert to succeed him. This king proved milder to his subjects than his father. He built Westminster hall; made Malcolm, king of Scots, tributary; and quelled several insurrections in Wales. In his reign, Earl Goodwin's lands, being 5000 acres, were overflowed by the sea. William was killed in the New Forest, by an arrow levied

at a deer, by Sir Walter Tyrrel. He reigned 13 years, and was burried at Winchester.

Aug. 1. 1100. HENRY I, youngest son of William the conqueror, succeeded next, Robert being in the Holy Land. He restored the free use of fire and candle; forgave all debts to the crown before his coming to it, and confirmed the laws of Edward the confessor. The greatest blot to his reign, was his cruelty to Robert his eldest brother, whom he brought prisoner to England, and confined him in Cardiff castle, in Wales, with hard usage, the space of 26 years. As Oxford university was restored by Alfred, so was Cambridge by Henry. He died in France, but was brought over and buried in the abbey of Reading. He reigned 35 years; and Matilda (Maud) his heiress, descended from Edmund Ironside, was set aside by the power of the clergy, to make room for

Dec. 2, 1135. STEPHEN, a grandson of the conqueror, by Adela his daughter and her husband Stephen Earl of Champaine and Blois. But as he was an usurper, so his reign proved troublesome from Matilda, the right heir; who in pursuance of her right, spun herself and Stephen a long thread of troubles. He adopted Henry, son of Matilda to succeed him. Having reigned 19 years, he died at Dover, and was burried at Feversham.

Oct. 25, 1154. HENRY II, son of Geofry Plantagenet, earl of Anjou, succeeded Stephen. In him the Norman and Saxon blood was united; and with him began the race of the Plantagenets, which ended with Richard IIId. He recovered Cumberland and Westmoreland from the Scots, which had been subject to them above 200 years. He subdued the Welch, and conquered Ireland. He had a concubine called Rosamond, daughter of Lord Clifford, whom he kept at Woodstock in Oxfordshire. Being gone to Normandy, the queen took that opportunity of poisoning her, for which she was imprisoned till the king's death. In his reign, Thomas a Becket, son to a tradesman in London, being bred to the law, was made lord high chancelor, and afterwards archbishop of Canterbury. Several rapes and murders being committed by the clergy, and Becket refusing to punish them, was banished by the king. But being recalled and continuing refractory, he was murdered in Canterbury cathedral, by four courtiers, on Christmas

Chriſtmas day, as he was ſaying prayers at the altar. The king ſubmitted to a grievous penance for it, which was to walk three miles bareſoot to Becket's tomb, and be ſcourged on the back by the monks of Canterbury. He reigned 35 years, died at Chinon in Normandy, and was buried at Fonteverard.

July 6, 1189 RICHARD I. for his valour ſirnamed lion heart, ſucceeded his father Henry II. He ſignalized himſelf in the holy war; but being deſerted by the French, he returned home without taking Jeruſalem. Being ſeparated from his fleet, and coming by land through Germany, he was taken priſoner by the emperor, and obliged to pay 10,000 marks for his ranſom. In a war between England and France, Richard fought perſonally in the field and gained a compleat victory over the enemy, but was unfortunately afterwards ſhot with an arrow, at the ſiege of the caſtle of Chalus. He was buried at Fonteverard, after a reign of ten years. In his time lived Robin Hood and Little John, two famous robbers. And in his reign the city of London aſſumed a new form with regard to its government, it being divided into corporations, or as they are now termed, companies.

Ap. 6, 1199. JOHN, 4th ſon of Henry II, took poſſeſſion of the crown, on Richard's deceaſe, in prejudice of Arthur his nephew. He immortalized his name by granting his ſubjects the charter of foreſts, and the Magna Charta, or charter of liberties, which has been ever ſince eſteemed the meaſures of the Engliſh government. He granted the Londoners to chuſe yearly a mayor and common council. In his time London bridge was built of ſtone. He reigned 17 years; and is reported by ſome to have died at Newwark of a fever, by eating of peaches; and by others to have been poiſoned by a monk at Swinſtead Abbey, Lincolnſhire. He was buried at Worceſter.

Oct. 19, 1216. HENRY III. ſucceeded his father John at 9 years of age. He proved but a weak prince; and great part of his life was embroiled in a civil war. Such was this king's prodigality, that it brought him to poverty and contempt. For a ſum of money he renounced his right to Normandy and the other French provinces. He founded the houſe of Converts, and an hoſpital at Oxford. He reigned 56 years, died at St. Edmund's-bury, and was buried at Weſtminſter.

Nov. 16, 1272. EDWARD I. son of Henry, was in the holy land when his father died. He proved a very successful warlike prince. He was a terror to France, subdued Wales and conquered Scotland, and brought from thence the famous stone and coronation chair, now in Westminster abbey. He created his eldest son prince of Wales, which title has been enjoyed ever since by the eldest sons of all the kings of England: And in his last moments exhorted his son to continue the war with Scotland. He reigned 35 years, and was buried at Westminster.

July 7, 1307. EDWARD II. commonly called Edward of Caernarvon, succeeded his father, but proved an unfortunate prince; being despised by his nobles, and slighted by the commons; he was first debauched by Gaveston, his favorite, and afterwards by the two Spencers, father and son. The barons took up arms against the king, Gaveston was beheaded, the two Spencers hanged, and himself compelled to resign the crown to prince Edward III. his son. Soon after, he was barbarously murdered at Berkley castle, by Mortimer, the queen's favourite. He reigned 20 years, and was buried at Glocester.

Jan. 20, 1327. EDWARD III. succeeded his father Edward II. Through a procurement of Mortimer, a favourite of his mother, he made a dishonourable peace with Scotland; for which and other crimes, Mortimer lost his life soon afterwards. He made a new conquest of Scotland, and took David Bruce, their king, prisoner. This king's eldest son, sirnamed the black prince, gained two surprizing victories, one at Cressi, the other at Poictiers, in which he took king John and his youngest son Phillip prisoners. In his reign was instituted the noble order of the garter; and the title of duke of Cornwall being first conferred on the black prince, continued as a birth right to the prince royal of England. Edward the black prince died in 1376, whose untimely end hastened his father's death, who after reigning 30 years, died at Shene in Surry, and was buried at Westminster.

June 21, 1377. RICHARD II. son to Edward the black prince, inherited his grand-father's crown, but had neither his wisdom nor good fortune. He was born at Bordeaux in France: His managements in England made his reign troublesome to his subjects, and in time lost him the crown.

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He raiſed a tax of four-pence per head, which occaſioned an inſurrection by Wat Tyler, who being ſtabbed by William Walworth, then lord mayor of London, the inſurrection was quelled. The duke of Glouceſter being ſmothered, and the duke of Lancaſter's goods unjuſtly ſeized, with a deſign to baniſh his ſon, compleated the king's ruin. After great cruelties and tyranny, he was compelled to reſign his crown; and being confined in Pomfret caſtle, Yorkſhire, he was barbarouſly murdered. He reigned 22 years, and was buried at Langley.

The LINE *of* LANCASTER, *called the* RED ROSE.

Sept. 29, 1399. HENRY IV. who ſucceeded his couſin Richard, was ſon of John, duke of Lancaſter, the fourth ſon of Edward III. He came to the crown by the power of the ſword; but by conſent of the people. As he acquired it by the ſword, ſo he kept it by ſuppreſſing factions; quelling the Scots, and reducing the Welch. He reigned 13 years, died at London, and was buried at Canterbury.

March 20, 1413. HENRY V. eldeſt ſon of Henry IV. though a looſe prince in his youth, proved a wiſe, virtuous and magnanimous king. He baniſhed his looſe companions from court; and claimed the Engliſh title to the crown of France ſo effectually, that with 14000 men he beat the French at Agincourt, tho' 140,000 ſtrong. At that time there reigned in France, Charles VI. a weak prince, who was prevailed upon by his queen to diſinherit the Dauphin, and give his daughter Catherine to Henry, who was declared heir to the crown of France, and regent during the king's life; but did not live to ſit on the throne of France. He reigned but 10 years, died at Vincennes in France, and was buried at Weſtminſter, in the 39th year of his age. He left the care of Henry VI, a new born ſon, his ſucceſſor, to the cardinal of Wincheſter. The government of England, till the prince was of age, he left to Humphry, duke of Glouceſter; and the regency of France to the duke of Bedford, his two brothers.

Aug. 31, 1422. HENRY VI. was a weak and unfortunate prince. The crown of England being diſputed between him and the houſe of York, occaſioned ſuch civil

wars

wars in England, as made her bleed for 84 years, when all the princes of York and Lancaſter were either killed or beheaded. The French, taking this favourable opportunity, ſhook off the Engliſh yoke, and recovered their liberty in 5 years, and placed Charles VII, the young dauphin on the throne of France. The crown of England was now ſettled by parliament upon the Houſe of York and their heirs, after the death of Henry, whoſe heirs were excluded for ever. This prince paſſed thro' various changes of life, and was at laſt ſtabbed by Richard, duke of Glouceſter, who had before murdered Edward, the only ſon of this unfortunate king.

The LINE *of* YORK, *called the* WHITE ROSE.

March 4, 1461. EDWARD IV, eldeſt ſon of Richard duke of York, proved a valiant prince in war, but effeminate in peace. Such were the revolutions of this king's reign, that he was forced to fly into France; Henry replaced and depoſed, and Edward re eſtabliſhed; Henry being twice made a priſoner to Edward, and Edward once to Henry. Tewkesbury fight at laſt decided the quarrel in favour of Edward, in which queen Margaret and her ſon prince Edward were taken priſoners. The prince was killed by bloody Richard, duke of Glocester, and king Henry was murdered a little time after in the tower, by Richard's contrivance, but the queen was ranſomed. This Richard aiming at the crown, got his elder brother George duke of Clarence out of the way, and procured his death by an impeachment of high treaſon. Edward leaving two young ſons when he died, Richard found means to diſpatch them likewiſe, and clear his way to the throne. At laſt Edward died, having reigned 22 years, and was buried at Winſor. In his reign the art of printing was brought into England.

April 9, 1483. EDWARD V. eldeſt ſon of Edward IV. ſucceeded his father, but was cut off with his brother Richard, by their uncle Richard, who cauſed them to be ſmothered in bed in the tower, ſo that this young king reigned only two months.

June 22, 1483. RICHARD III. ſirnamed crook back, youngeſt brother to Edward IV. and uncle to Edward V. having diſpatched his nephews, ſucceeded to the crown, and was the laſt king to the houſe of York. He was an uſurper,

uſurper, and his cruelty ſo incenſed the duke of Buckingham, his favourite, to ſuch a degree, that he contrived his ruin, and offered the crown to Henry earl of Richmond, the only ſurviving prince of the houſe of Lancaſter, then at the court of France, on condition that he would marry Elizabeth the eldeſt daughter of Edward IV. in order to unite the houſes of York and Lancaſter. Richard being informed of the affair, ordered the duke to be inſtantly beheaded without a trial. However, this did not diſcourage Henry who had accepted the offer. He came over with a ſmall force, and landed in Wales where he was born, his army increaſing as he advanced. At length, having collected a body of 5000 men, he attacked Richard in Boſworth field in Leiceſterſhire, in 1485. Richard fought bravely till he was killed in the field, and ſo made way for Henry to the crown of England.

The two contending Families of YORK *and* LANCASTER *united, in the Perſon of*

Aug. 22, 1485. HENRY VII, who ſucceeded next to Richard upon his victory at Boſworth. He was a prince of great ſagacity, but very unjuſt and cruel; nor was his reign free from troubles: To which the queen's own ſiſter, the dutcheſs of Burgundy, who was a profeſt enemy to the houſe of Lancaſter, mainly contributed by her two impoſtors, Perkin Warbeck, and Lambert Simuel, who perſonated Edward V, and Richard his brother, both pretending to be ſtill living. The end thereof proved comical in Lambert, and tragical in Perkin. The firſt having been crowned king in the cathedral of Dublin, was afterwards taken, and made a turn ſpit in king Henry's kitchen; but Perkin, after great honour done him in ſeveral courts, as a prince of the blood royal of England, was at laſt hanged at Tyburn. Edward Plantagenet, earl of Warwick, the laſt prince of that race, was beheaded for attempting to make his eſcape, after being impriſoned from nine years old. As he grew old, he grew covetous; and to increaſe his treaſures he cauſed all penal laws to be ſtrictly put in execution. He built that noble chapel joining to the collegiate church of Weſtminſter, which is called to this day Henry the VIIth's chapel; in which he

was

was buried, having lived 52 years, and reigned almoſt 24. He died at his palace in Richmond, and left in ready money 1,800,000 l. to his ſucceſſor. He had two daughters, Margaret and Mary. The firſt he wiſely married to James IV, of Scotland, and Mary to Lewis XII, of France, foreſeeing, that if the crown of England ſhould fall to France by right of inheritance, England might look upon France as the greater kingdom of the two. But falling to Scotland, as it did actually in the perſon of king James I. Scotland muſt look upon England as the greater kingdom.

April 22, 1509. HENRY VIII, born at Greenwich in 1491, was the only ſurviving ſon of Henry VII. He reigned for ſome years with great applauſe, till being vitiated by cardinal Woolſey, luxury and cruelty obſcured his virtues, and ſtained his former glory. Of ſix wives, Katherine of Spain, Ann of Bullen, Jane Seymour, Ann of Cleeve, Katherine Howard, and Katherine Parr, he parted with two; viz. Katherine of Spain and Ann of Cleeve: The firſt as an inceſtuous match, ſhe being the widow of his elder brother: And to Ann of Cleeve he had a perſonal averſion, and ſo never knew her. He beheaded Ann of Bullen for pretended adultery, and Catharine Howard for the real fact. Upon his divorce from Catharine of Spain, he married Ann of Bullen, for which he was excommunicated by the pope; but Henry, being proof againſt the thunder bolts of Rome, ſhook off the pope's ſupremacy. Thus a foundation was laid for a reformation from the abuſes and errors of the church of Rome, to which Thomas Cranmer did very much contribute, who was therefore preferred to the ſee of Canterbury. Mean while all the monaſteries in England were diſſolved, and ſix new biſhopricks erected, Weſtminſter, Oxford, Peterborough, Briſtol, Cheſter and Gloceſter, all which, except Weſtminſter, now continue. Though he diſcarded the pope, he retained to the laſt many errors of the church of Rome; and proved a two-edged ſword, ſparing neither the oppoſers of his ſupremacy, nor thoſe who denied tranſubſtantiation, hanging the firſt, and burning the laſt. Cardinal Wolſey, who lived in the greateſt ſtate of any prelate in Chriſtendom, fell under his diſpleaſure; and Cromwell, earl of Eſſex, his great ſervant and favourite, was beheaded. The ſame fate had Sir Thomas Moore, lord chancellor, and John Fiſher, biſhop

biſhop of Rocheſter, for diſowning the king's ſupremacy. He ſuppreſt ſeveral rebellions; one in Lancaſhire, one in Yorkſhire, and another in Ireland. Wales was in this reign united to England; and Ireland made a kingdom. After this, Henry's friendſhip was equally courted by the emperor Charles V, and the French king Francis I, then at war. The emperor carried it at firſt, who came twice over into England: But cardinal Wolſey aiming at the papal chair, and finding the emperor thwarted him in his deſign, got the king over to the French intereſt. To unite Scotland to England, a match was concluded between prince Edward, his ſon, and Mary the young queen of Scots; but afterwards broke off by the power of the Hamiltons, and the French intereſt. This occaſioned a new war, both with France and Scotland; in which Henry took Boulogne from the French, and deſtroyed with fire Leith and Edinburgh in Scotland. Thus reigned Henry about 38 years, a prince at firſt of great virtues, and at laſt of great vices; who being grown boiſterous and arbitrary, kept his parliament in awe, and became a terror to all his ſubjects. He died January 28, 1547, and was buried in Wind or Chapel. The children he left were his three ſucceſſors, who all died without iſſue, viz. Edward by Jane Seymour, Mary by Catherine of Spain, and Elizabeth by Ann Bullen.

Jan. 28, 1547. EDWARD VI, only ſon of Henry VIII, by Jane Seymour, his third wife, was about 10 years old when he aſcended the throne; but of a pregnancy of judgement, and ſuch improvement of learning, as was much above his years. His reign began with a proſperous war againſt the Scots, to whom the duke of Somerſet, his uncle and protector, gave a great overthrow at Muſſelburg. In this ſhort reign great progreſs was made in the reformation, by the zeal of archbiſhop Cranmer, and that of the protector; notwithſtanding the ſtrong oppoſition of Gardiner, biſhop of Wincheſter, and Bonner, biſhop of London. This reign is alſo memorable for the diſcovery made by Richard Chalinour, of the north eaſt paſſage to Archangel in Muſcovy, till then unknown by ſea, and become ſince a great thorough fare from Aſia into Europe; the goods from Iſpahan in Perſia being now chiefly brought that way. Alſo for the fall of the lord high Admiral, Thomas Seymour, the protector's brother; and not long after of the

protector himself, by the arbitrary power of Dudley duke of Northumberland, a man of great ambition, who seeing the king in a consumption, and contriving to settle the crown in his own family, married his fourth son, the lord Guilford Dudley with the lady Jane Gray, of the royal blood by the mother's side; for she was daughter to Henry Gray, duke of Suffolk, by Frances his wife, daughter of Mary, queen of France, sister to Henry VIII. Then he got king Edward to declare her his successor by will, to the prejudice of his sisters; and this will was confirmed by the privy-council and the judges. The king reigned but six years, and was buried at Westminster.

July 6, 1553, MARY I, eldest daughter of Henry VIII, by his first wife, daughter of Ferdinand king of Spain, succeeded her half brother Edward. 'Tis true, the lady Jane Gray, mentioned in the former reign, was proclaimed queen before her, according to king Edward's will. But that will being thought illegal, as contradicting his father's will, Norfolk and Suffolk were the first counties that opposed the settlement of the lady Jane, and stood out for queen Mary; who having got the crown, made it her business to explode the reformation, and restore popery with a vengeance; which she did in 18 months, but with so much cruelty, that the kingdom blazed every where with human sacrifices. Archbishop Cranmer, and four other bishops, ended their lives in those popish flames. The two popish bishops, Gardiner, lord chancellor of England, and Bonner, bishop of London, men of a revengeful spirit, and cruelly imbittered against protestantism, were the great promoters of those extreme barbarities. The lady Jane Gray, the duke of Northumberland her father-in-law, the duke of Suffolk her own father, her husband, and his brother the lord Thomas Gray, lost their lives upon the scaffold. The lady Jane, then about seventeen years of age, was beheaded in the tower, two hours after her husband, and died a lasting monument in history, of piety, constancy, wisdom, wit and learning above her age, and beyond her sex. She fell a sacrifice to her friend's ambition, by whose prevalence she assumed the crown with tears. But the lady Elizabeth, called by the popish party *The hope of the hereticks*, remained still a stumbling block. She was committed under a slight pretence of treason; and

suffered

ſuffered above a twelvemonth's confinement, before her innocence could procure her liberty. At laſt, queen Mary, being near 40 years of age, married king Philip of Spain; which marriage occaſioned an inſurrection. It was in this reign we loſt Calais in France, after it had been in our poſſeſſion above 200 years. The queen died upon it; and with her life expired a reign, begun, continued and ended in blood, happy in nothing but the ſhortneſs of it. She was buried at Weſtminſter.

Nov. 17, 1558, ELIZABETH, daughter of Henry VIII. by Ann of Bullen, ſucceeded next to queen Mary, her half ſiſter. She proved an excellent queen, the glory of her ſex and admiration of the age ſhe lived in. She reſtored the reformation, and brought it to that perfection, in which it has continued ever ſince in the church of England: For which ſhe was excommunicated by the pope, and her ſubjects abſolved from their allegiance; which occaſioned plot upon plot, and rebellion upon rebellion. The Roman party was powerful in her time, and ſtrove hard to cut her off by treachery, or dethrone her by force, but it pleaſed God to preſerve her, during the whole courſe of her reign, from all her enemies, both at home and abroad. Memorable was the year 1588, for the Spaniſh invaſion, attempted by king Philip with his *invincible armada*, but diſappointed by God's providence. On the whole ocean ſhe commanded, which ſpread her fame over the globe, and made her name every where reſpected. With much reluctance ſhe conſented to the death of Mary, queen of Scots, charged with high treaſon in England; where ſhe was fled for ſhelter, from a potent faction in Scotland. The queen grieved much for the death of the earl of Eſſex, whoſe fall was occaſioned more by her favor, than his crimes. She lived but two years after, aged 69, and having reigned 44 years, was buried at Weſtminſter abbey. It was in her reign the inquiſition of England was ſet up, I mean the Star Chamber, and high Commiſſion court; which grew ſo very grievous and arbitrary, that they were both ſuppreſt by an act of Charles I.

The Two Crowns united.

THE union of England and Scotland immediately after the deceaſe of queen Elizabeth, happened in the perſon of

Mar. 24, 1603. JAMES STUART, the firſt king of Great Britain, and the ſixth of that name in Scotland, who ſucceeded queen Elizabeth as next heir; being great grandſon of Margaret, eldeſt daughter of Henry VII. He was ſon of Mary queen of Scots, beheaded in the late reign; and ſhe was daughter to James V, of Scotland, ſon of James IV, by the aforeſaid Margaret. His father was Henry lord Darnley, who was grandſon likewiſe of the ſame queen Margaret, by the earl of Angus, her ſecond husband. Before he left Scotland, he narrowly eſcaped a conſpiracy, managed by the earl of Gowry, and his brothers; and ſoon after his arrival here, he was wonderfully delivered from the gunpowder treaſon, contrived by the papiſts, when the king, church and ſtate were to be deſtroyed at once, by blowing up the parliament. Among ſome memorable things of this reign, I reckon the two royal viſits his majeſty received from Chriſtiern IV, king of Denmark, whoſe ſiſter Ann was king James's conſort; which frankneſs, unuſual with crowned heads, the king acknowledged with all ſenſe of gratitude: The creation of a new order called Baronets, next to a Baron, and made hereditary: The fall of lord chancellor Bacon, a man of wonderful parts and univerſal knowledge: And that of Sir Walter Raleigh, a great man, who by the intereſt of the Spaniſh ambaſſador, then in great favor at court, loſt his head upon a ſcaffold, after a ſentence paſſed 15 years before. The king's iſſue was Henry, his eldeſt ſon, the people's darling, who died in his father's life time. Charles his ſucceſſor, and Elizabeth, married to the unfortunate Frederick, elector palatine of the Rhine; Mary and Sophia, who died young. King James was too much a ſcholar, and too little a ſoldier; for he talked much of religion, but never cared to draw the ſword in its defence. Though he was born and bred in presbytery, according to the reformation of the kirk of Scotland, yet he thought epiſcopal government in the church ſo great ſupport to the crown, that he often uſed to ſay, *No biſhop, no king.* The office of maſter

maſter of the ceremonies, for the reception and entertainment of princes and ambaſſadors was firſt eſtabliſhed by this king. He reigned 23 years; died at Theobalds, a royal palace in Hertfordſhire, aged 59 years, and was buried in Henry VII. chapel. Thus ended a peaceable, but inglorious; a plentiful, but luxurious reign; to make way for one both turbulent and tragical.

Mar. 27, 1625. CHARLES I, only ſurviving ſon of king James, ſucceeded next. He was born at Dumferling, in Scotland, 1600, and crowned at Weſtminſter 1625: But his crown proved a crowns of thorns, and his reign ended in blood. He had a bigotted wife, Henrietta, daughter to the French king Henry IV, who ſtrove eagerly to bring in popery and arbitrary power; and he had a miniſtry ready moulded for it. His wonderful compliance with the queen made him do many things contrary to the laws of the kingdom; and he would ſooner give ear to his miniſters, than follow the advice of his parliament. His favorite, the duke of Buckingham, was ſtabbed by Felton, out of zeal for the public good. In ſhort, the nation was twelve years without a parliament, and the king ventured againſt law, to raiſe ſhip-money by his own authority, which put the whole nation into a ferment. The cruel maſſacre in Ireland of between two and three hundred thouſand Engliſh proteſtants, though wrong charged upon the king, was a great aggravation. The Scots entered into a covenant againſt Epiſcopacy, which he forced upon them. This drew on a remonſtrance from the diſſenters in England, and occaſioned the long parliament, convened by the king for redreſs of grievances. They proceeded in that affair in a regular parliamentary way, 'till ſome bad men on both ſides inflamed the people to that exceſs which brought on the cruel and deſtructive civil war. The king was obliged to part with his two grand miniſters, archbiſhop Laud and the earl of Strafford, who loſt their heads upon a ſcaffold. At laſt the ſword was drawn and ſeveral battles fought: The king fell into the hands of his worſt enemies; who, to take away his life by methods of pretended juſtice, erected a court, by which he was ſentenced to death, as the author and contriver of the late inteſtine war; and accordingly was beheaded before Whitehall, Jan. 30, 1648, being done in the name of the whole people of England,

when the better part looked upon it with horror and indignation. The king was privately buried in Windsor chapel, leaving three sons and three daughters, Charles his successor, James duke of York, and Henry duke of Glocester: Mary, who married William, prince of Orange, father to king William III. Elizabeth, who died a prisoner in the isle of Wight, soon after her father's death; and Henrietta, married to the duke of Orleans, only brother to Lewis XIV.

Jan. 30, 1649, CHARLES II, eldest son of Charles I, succeeded his father, but was kept from the crown above eleven years. During which time England was reduced to a common wealth, but moulded into various shapes, till at last Oliver Cromwell assuming the government, under the title of Lord protector, kept England in awe, curbed Scotland, reduced Ireland, beat the Hollanders, got Dunkirk and Jamaica from Spain, and became a terror to Europe in general. King Charles yielding to some conditions imposed upon him by the kirk of Scotland, was received by the Scots; and being crowned at Scoon, they sent an army with him into England, to recover that kingdom: But being totally defeated at Worcester, he wandered about in disguise for six weeks, till he made his escape into France; from whence he was forced to fly into the Spanish dominions, upon a league concluded by Cromwell with France against Spain. Several attempts were made by the loyal party, but none that could take effect: nor was there any hope of a restoration till Oliver's death, which happened on the third of September, 1658. He left two sons, Richard who succeeded him in the protectorship, and Henry in the government of Ireland. But Richard was soon turned out by the army, as being lukewarm in the cause; and the rump parliament restored, under the name of the Junto, consisting only of such members as were devoted to the cause, the rest having been secluded. This Junto was soon after dissolved, to make way for a new model of government, called the committee of safety, consisting of 23 members. The parliament being met in April 1660, voted the return of king Charles, as lawful heir to the crown. And he was accordingly proclaimed at London, May 8, where he made a most magnificent entry the 29th, being his birth-day; and the 23d of April following, on St. George's

St. George's day, was crowned at Weſtminſter, with the utmoſt ſtate and ſolemnity: So univerſal was the joy of his ſubjects for the reſtoration of monarchy and the Britiſh conſtitution. Thus the laws of England were revived, the church re-eſtabliſhed, and all things reſtored to their proper channel. The next year the king married Catherine of Portugal, whoſe barrenneſs was a misfortune to England. Prince Henry, duke of Glouceſter, a hopeful prince, and the people's darling, died ſoon after the reſtoration: But the duke of York, his brother, had too great a ſhare in the government, during the reign of king Charles. The ſtanding army was disbanded, but general Monk had great honour and riches; was created duke of Albemarle, and buried like a prince after his death. Several of the late king's judges were tried as traitors, condemned and executed; but died without any retraction. As for the king, he proved of an excellent temper, affable and eaſy of acceſs; of accute and judicious parts, of great inſight into men and manners, and generally beloved by all parties for his innate clemency. The fitteſt perſon in the world for the Engliſh government, had not his love to eaſe and pleaſure made him averſe to buſineſs. Mars had governed long enough in the late reign, to make way for Venus; and Charles, who had been ſo great a ſufferer in his exile, was willing to make himſelf amends with the pleaſures of love and gallantry. Wherefore he indulged all parties, and ſecured himſelf at home, however things went abroad. Henry VIII had the way to keep his ſubjects in awe, but Charles II had that of getting their hearts. His voluptuouſneſs proved fatal to the nation; for his ſubjects, following his example, ſunk to ſuch a degree of lewdneſs and effeminacy, that the buſineſs of this reign ſeemed only to breed gallants for the ladies. Among ſome memorable things we may reckon his parting with Dunkirk to the French, for a paultry ſum; and his blowing up Tangier in the Streights, after great ſums expended for the improving and keeping it: The vaſt ſubſidies he received from his long parliament, which were ſtrangely miſapplied: His ſhutting up the exchequer, after it was filled with loans, to the ruin of many perſons and families: The two Dutch wars, which ended with no advantage to either ſide, but ſerved ſo far the French intereſt, as to teach them the art of

naval

naval war, and to give them the pleaſure of ſeeing the two greateſt proteſtant ſtates weaken one another: The dreadful plague this nation was viſited with, while we were engaged in the firſt Dutch war; the burning of London, which happened juſt after, and the popiſh plot, for which many ſuffered death, are remarkable events in this reign. He died Feb. 6, 1685, in the 55th year of his age, and was buried privately at Weſtminſter. Though king Charles had an amorous diſpoſition, and did not much concern himſelf with religion or politics, yet his meek temper to all men, took ſo much with his ſubjects, that he died univerſally lamented; and only thoſe rejoiced at it, whoſe intereſts and hearts were wrapt up in the duke of York: He had no lawful iſſue, but many natural children. The two firſt were the duke of Monmouth his favorite; and the earl of Plymouth, who died at Tangier. Thoſe two were before the reſtoration. After which he had three ſons by the Dutcheſs of Cleveland, viz. the dukes of Cleveland, Grafton and Northumberland. By Nell Gwyn two ſons, of which one died young, and the other was duke of St. Albans. And by the dutcheſs of Portſmouth he had the duke of Richmond: In all eight ſons and five daughters.

Feb. 6, 1685. JAMES II, ſucceeded his brother Charles, but proved unfortunate to himſelf and people. As ſoon as he came to the crown, he convinced the world of his zeal for the Romiſh cauſe. However, by his firſt declaration, he promiſed great matters to his ſubjects, particularly to the church of England, which had ſtruggled ſo hard in the late reign to ſecure his ſucceſſion. He had the good luck to ſuppreſs the inſurrection of Argyl in Scotland, and that of Monmouth in England (who were both beheaded) and having a brave army on foot, he preſently broke looſe on the laws, and made his will the meaſure of his government. To do it with the better gloſs, he ſet up a diſpenſing power by virtue whereof he might ſuperceed any law; and Romans were admitted into publick offices, without taking the oaths required. The rights of the univerſities he invaded, and made Magdalen college, at Oxford, a prey to his violence. Seven biſhops were ſent as criminals to the Tower, for refuſing an illegal compliance to his will; but upon trial they were acquitted by law. The kingdom ſwarmed with papiſts from all parts: Popiſh ſchools, chapels

pels and monaſteries were ſet up againſt law. Father Petre, a jeſuit, and ſeveral popiſh lords, ſat in the privy council, and ſome popiſh judges on the bench. In ſhort, upon theſe bare-faced practices, it was high time for the proteſtant party, to check the growing power of popery, and to requeſt the prince of Orange to vindicate his conſort the princeſs's right, and that of theſe three nations. The prince being come over with a land army, revived the hopes of all good proteſtants, and ſunk thoſe of the papiſts. King James had a gallant army of 30,000 men, which by his orders marched to Salisbury plain, as ſoon as he heard of the prince's landing at Torbay. But finding the nation in general declare for the prince, and that his own forces daily deſerted, he did not think it convenient to ſtand a battle. Mean while the prince moved on, and the king upon his approach returned to London. This made his army break up, and march off in great confuſion, ſome one way, and ſome another. Dec. 10, 1688, he ſent his queen into France, with the pretended prince of Wales; and on the 11th, late at night, he withdrew himſelf from Whitehall, ſteering his courſe the ſame way. At Feverſham in Kent, he was ſtopt by ſome ſturdy fellows, then Jeſuit-hunting: But being known by ſeveral gentlemen, who got him out of their hands, he was prevailed upon to return to Whitehall, which he did on the 16th. The next day he went off again, directly to France, where his queen was already landed; and the prince came up to St James's palace, where he kept his court. Soon after which he had both the civil and military power lodged in him by the convention of lords and commons, which being met Jan. 22, at Weſtminſter, voted the abdication of king James, and the throne to be vacant. He, in the mean time, took ſanctuary in the French court, for above 12 years, and died at St. Germains, his uſual place of reſidence, Sept. 16, 1701, aged 68. Thus ended the life of king James in obſcurity. His firſt wife, when he was duke of York, was Ann, eldeſt daughter to Hyde, earl of Clarendon, Lord high chancellor of England, by whom he had iſſue, the queens Mary and Ann. By his ſecond wife, an Italian princeſs, he had ſeveral, but ſhort lived children; except another Mary, who was born and died in France, aged 20 years.

Feb.

Feb. 13, 1689. WILLIAM III, and MARY II, prince and princeſs of Orange, ſucceeded upon the vote of the convention, That *king* James *had abdicated the government, and the throne was thereby vacant.* After which the convention voted an offer of the crown to the prince of Orange; and to demonſtrate farther their gratitude and generoſity, together with the great value they had for the princeſs of Orange, notwithſtanding the male adminiſtration of her unhappy father, they raiſed her to a joint ſovereignty with the prince; the public acts to run in the name of both, but the executive power to be ſolely in the king: So that the prince and princeſs were equal in dignity, but not in authority. The princeſs, upon this, ſet out from Holland, and arrived at Whitehall, Feb. 12. 1689. The next day being the 13th, the crown was offered to their highneſſes, in the name of both houſes; which being accepted, they were ſolemnly proclaimed on that day, and upon the 11th of April following, crowned with great pomp and magnificence. The ſettlement of the crown was thus: *To be enjoyed by them during their lives, and the life of the ſurvivor of them; and after their deceaſe, to be to the heirs of the princeſs; and for default of ſuch iſſue, to the princeſs* Ann of Denmark, *and the heirs of her body; and for default of ſuch iſſue, to the heirs of the body of the ſaid prince of* Orange. In Scotland the ſame courſe was taken for ſettling the government there. And to prevent all diviſions from any pretended title to the crown, and to preſerve a certainty in the ſucceſſion thereof, this ſettlement was confirmed by an act of parliament, which paſſed Decemb. 16, 1689, with this excellent proviſo, *That all and every perſon reconciled to, or holding communion with the church of* Rome, *or profeſſing the* Popiſh *religion, or that ſhall marry a* Papiſt, *ſhall be excluded, and be for ever incapable to enjoy the crown of* England *and* Ireland, *or any part of the ſame; that in ſuch a caſe the people ſhall be abſolved of their allegiance; and the crown ſhall deſcend to the next perſon being* Proteſtant, *that ſhould have inherited the ſame, in caſe the ſaid perſon or perſons ſo reconciled,* &c. *as aforeſaid, were naturally dead.* Mean while the parliament voted a war againſt France, which was carried on with various ſucceſs on both ſides, the French king being at that time in his moſt flouriſhing condition. Ireland was then in arms for king James, power-

powerfully assisted by France, both with men and money, to secure that kingdom for him, and thereby facilitate his restoration here, but all to no purpose. Two campaigns made an intire conquest of that island; the first famous for king William's signal victory at the Boyne; the other for the English victory at Aghrim, under the principal conduct of general Ginckle; the consequence of which was the taking of Limerick, and the total reduction of Ireland. Immediately after the battle at the Boyne, king James (who saw it only at a distance) not thinking himself safe in Ireland, returned into France. The taking of Cork and Kinsale, by Churchill, earl of Marlborough; the wonderful resistance of Londonderry, and the great vigour and courage of the Inniskilling men, in the North of Ireland, deserve to be recorded. Scotland had also a party in arms for king James, 1689, under the command of viscount Dundee, while the castle of Edinburgh held out for the said king, under the duke of Gordon. But Dundee being slain in fight, and his forces routed, the duke of Gordon soon after surrendered the castle to the government. In England, king William had a revengeful party to keep under; some plotting against his life, others betraying his councils; all endeavouring to work the nation into a general disgust, that he scarce knew whom to trust; insomuch that the crown proved to him no desirable possession. During a bloody war of 9 years continuance, several great battles were fought, particularly at Fleras, Stienkirk, and Landen, in which, though the French had the advantage by their numbers, it cost them excessive dear. The two sieges of Namur are very remarkable, the first successful to the French, the last to the allies, who carried it with the utmost bravery, from an army within under marshal Boufflers; and in the sight of a French army without of 100,000 men, commanded by marshal Villeroy. At sea we had two general fights, both in the channel. In the first the French had the better and kept the sea, but made no advantage of it: In the last, fought at the Hogue, we got an intire victory: The Rising Sun and two others were burnt at Cherburgh, and 13 more men of war burnt at the Hogue; besides about as many more that were sunk, lost and destroyed. Queen Mary's death in 1694, was a great grief both to king and people: A princess admired all over Europe, for her beauties of mind and person. The war

with

with France went on, till at laſt all parties grew weary of it, and France herſelf ſought for peace; not (I confeſs) in a precarious manner, but under the vain notion of giving peace to Europe. It was concluded at Reſwick, near the Hague, in 1697; by which France gave up moſt part of her conqueſts. July 29, 1700. William duke of Glouceſter, the only ſurviving iſſue of princeſs Ann of Denmark, departed this life at Windſor, in the 12th year of his age. His majeſty at his return, conſulted with his parliament what effectual means might be uſed for ſecuring the ſucceſſion in the proteſtant line, and extinguiſhing the hopes of all pretenders, and their open and ſecret abettors. Accordingly, the parliament paſſed a bill for the farther limitation of the crown, and with the royal aſſent it was enacted, That *after king* William *and the princeſs* Ann *of* Denmark, *both dying without iſſue, the crown ſhould go next in the* Proteſtant *line to the princeſs* Sophia, *electoreſs and dutcheſs dowager of* Hanover, *daughter of the princeſs* Elizabeth, *late queen of* Bohemia, *only daughter of king* James I; *and after her deceaſe, to the heirs of her body, being* proteſtants. Thus did this heroic prince not only reſcue theſe kingdoms from popiſh ſlavery, but provided as much as poſſible for their future ſecurity. September, 1701, king James died at St. Germains. Upon his deceaſe the French king provoked this nation in the higheſt manner, and drew upon him a univerſal reſentment and indignation, by preſuming to proclaim the (pretended) prince of Wales, king of England, Scotland and Ireland, after he had owned king William as ſuch by the treaty of Reſwick. So that all things tended to a new breach with France, towards which the parliament voted great ſubſidies, while the king was making ſtrong alliances abroad. But when the time for action drew near, it pleaſed God to take this royal hero to himſelf, March 8, 1702; after a reign of 13 years and ſome weeks. He died at Kenſington, and was buried at Weſtminſter. He was the only iſſue of William of Naſſau, prince of Orange, and Mary, eldeſt daughter of king Charles I. He was born at the Hague, Nov. 4, 1650, ten days after his father's death, and two months before his time, which gave him that weak habit of body. His queen was his couſin German, but by her he had no iſſue. Thus died king William, who, like a true Naſſau, made it his buſineſs to ſecure liberty and property, and

reſcue

reſcue Europe from the incroaching power of France. To ſave Holland, his native country, he ſtruggled with fire and ſword, and at laſt recovered her liberty. To ſave England, he expoſed his life by ſea and land. By this means Great-Britain and Holland became united in one intereſt, which France always endeavoured to divide, and this union may be looked on as a ſufficient barrier againſt all pretenders to arbitrary monarchy. He revived the martial ſpirit of the Britiſh nation, ſhook the foundation of the French king's greatneſs, and left the demolition of it to his ſucceſſors.

March 8, 1702. ANN, ſecond daughter of James II. ſucceeded king William; whoſe death was a great joy to France, and as great a misfortune to England and her allies. But the queen ſtopt the firſt immediately, and ſoon diſſipated the fears of the laſt. April 23d ſhe was crowned with the uſual ſolemnity, and on the 4th of May following, war was proclaimed at London, Vienna, and the Hague, againſt France and Spain. The ſucceſs of that war is worthy our admiration, and almoſt incredible. The rapid conqueſt of the Spaniſh Guelderland, the electorate of Colone, and biſhoprick of Liege: The prodigious victory over the French and Bavarians, totally routed at Blenheim on the Danube, after their lines were forced at Schellenberg. by the ſurprizing conduct and bravery of the duke of Marlborough; the retaking the ſtrong fortreſs of Landeu from the French, and conquering from the duke of Bavaria (an unfortunate friend to France) all his eſtates in Germany: The forcing the French and Bavarians out of their lines in Brabant, which was thought impracticable. The battle of Ramellies, ſo fatal to France, and glorious to England, attended by an extraordinary deſertion of the French and Spaniſh troops, and the ſurrender of Brabant, and moſt part of Flanders, to their lawful ſovereign. The victory of Oudenard; the taking of Liſle and Tournay, the defeating of the French army at Blarenies, and the conqueſt of Mons; are ſuch events, as will render her majeſty's reign famous to all poſterity. If we turn to Spain, how bold and ſucceſsful was our attempt at Vigo, where we took and deſtroyed the whole Plate fleet men of war and others, in all 38 ſail, of which not one eſcaped? What can be greater than our taking Gibraltar in the morning with an inconſiderable force, and keeping the ſame

againſt the whole ſtrength of France and Spain, who attempted by ſea and land to recover it, but were at laſt ſhamefully forced to quit their enterprize? the ſame fate the French had before Barcelona, which being taken by the Engliſh and Dutch, conducted by the earl of Peterborough, was ſoon after beſieged by king Philip at the head of a great army, and after a ſharp ſiege, he and his troops forced to an inglorious retreat into France: Upon which all Catalonia, Arragan, Valencia, and other parts of Spain, ſubmitted to Charles III, under the influence of her majeſty's arms. In Italy, who could have expected ſuch a diſmal turn in the affairs of France, as happened in the year 1707, by the powerful influence of England? A numerous army of French and Spaniards intirely routed and deſtroyed before the walls of Turin, by thoſe two great commanders, the duke of Savoy, and prince Eugene his couſin. The duke of Savoy, when ſtript of all his dominions by the power of France, forced to quit his capital city, and hunted from place to place by his enemies, yet beat the French much ſuperior in number, forced their intrenchments, and drove them from the gates of Turin into Dauphiny, leaving behind them all their artillery, ammunition, caſh, and baggage, with the loſs of 20,000 men at leaſt, from the beginning of the ſiege of Turin. Thus Piemont was abandoned, and the Milaneſe, Mantuan, Modeneſe, Parmaſan, and Montſerrat, yielded up. In this queen's reign alſo, England and Scotland were united into one kingdom, notwithſtanding ſuch difficulties as were thought inſuperable, after ſeveral fruitleſs attempts of this kind, for a century paſt, and the ſtrong oppoſition ſhe expected from the Scots. Under thoſe diſcouragements her majeſty proceeded; and one year completed, what a whole age could not bring to paſs. To conclude, the ſucceſſes in her reign juſtly pronounced her one of the moſt triumphant monarchs of former ages, and her piety and perſonal virtues will ever be acknowledged by the Britiſh nation. In the latter end of the year 1709, died prince George of Denmark, conſort to her majeſty queen Anne: Soon after which a malignant party worked themſelves into her favour, and quite overturned that miniſtry which was a glory to their own country and a terror to France. Our allies were baſely deſerted, the greateſt advantages given up,

up, and a peace made with our enemies, as if they had been conquerors. The army was disbanded, and all the men of war laid up to make the way ſmooth for the pretender. And ſuch was the eagerneſs of this new Jacobite miniſtry, that their violent haſte overſet their own ſcheme; for their proceedings did ſo perplex and diſorder her majeſty, already in a bad ſtate of health, that it ſoon brought her to her death-bed, as ſhe herſelf complained. And though the end of this excellent queen was troubleſome to herſelf, yet it was critical with reſpect to the nation: Her majeſty was born at St. James's, Feb. 6, 1664; and having had a princely education, ſhe was, by her uncle king Charles II, for the ſecurity of the proteſtant religion in Great Britain, diſpoſed of in marriage to his royal highneſs prince George of Denmark, 1683; by whom ſhe had two ſons and four daughters who all died in their infancy.

Of the Settlement of the Crown in the Houſe of Hanover.

SOPHIA, the fourth and youngeſt daughter of Frederick V, Elector Palatine of the Rhine and king of Bohemia, and of Elizabeth of Great Britain, was, in the year 1658, married to Erneſt duke of Brunſwick and Lunenburg, afterwards elector of Hanover; which duke Erneſt ſucceeded to the biſhoprick of Oſnaburg; and alſo to the dukedom of Hanover, upon the death of his elder brother John, who died without male iſſue, 1680.

The elector Erneſt had iſſue by the ſaid Sophia, George I, king of Great Britain; Frederick, ſlain in Tranſilvania, 1690, valiantly fighting againſt the Turks; Maximilian, the third ſon, deceaſed; Charles, the fourth ſon, ſlain at the battle of Caſſaneck in Albania, 1690. Chriſtian, fifth ſon, ſhot in the river Danube, croſſing to charge the French, at the battle of Munderkingen, in 1703. Erneſt duke of York and biſhop of Oſnaburgh: Sophia their only daughter was married to Frederick, the firſt king of Pruſſia, and had by him Frederick II, king of Pruſſia, who married with his couſin german, Sophia Dorothy, only daughter of king George I. and had Charles, king of Pruſſia, and a numerous iſſue.

GEORGE I.

Purſuant to the act of ſettlement on the death of queen Ann (the princeſs Sophia alſo dying two month's before) George, the next indiſputable proteſtant heir, was, on the 1ſt of Auguſt, 1714, proclaimed king of Great Britain, &c. by the unanimous voice of the people.

The king having immediate notice of the queen's death and his own ſucceſſion, haſted over to England, bringing with him his ſon. whom he ſoon after created prince of Wales. On the 18th of September, 1714, his majeſty landed at Greenwich, where he was met by the lords of the regency, many of the privy council, and others of the nobility and gentry. From thence, on the 20th, he made his public entry into London, with a prodigious concourſe and train of nobility and gentry. Being thus peaceably arrived and crowned, he diſſolved the parliament, under which his right of ſucceſſion had been endangered, and then in a particular manner gratified thoſe who in the worſt of times, and under the frowns of the late miniſtry, had ſhewn themſelves his friends. King George had early intelligence, that Lewis XIV, would convey the pretender into Scotland; and accordingly in 1715 he landed there and was proclaimed: Many of the nobility and gentry joined him in hopes of a general diſaffection in England; but the king's forces ſoon diſſipated our fears; for in the two actions, at Preſton in England, and Dumblain in Scotland, the enemy was quite routed: The pretender ſlipt away with ſome chiefs of his party, and left the others to ſhift for themſelves. After which, about 16 Scotch lords were attainted. The earl of Derwentwater, an Engliſh peer, and the viſcount Kenmure of Scotland were beheaded. Of leſſer note many were impriſoned, and ſome executed. On April 22, 1715, happened that amazing and curious total eclipſe of the ſun. In 1716, the ſeptennial act was made: and at the cloſe of the year was a great froſt of three months continuance; about which time began to appear thoſe flaſhing ſtreams of light from the north, hitherto unaccountable. In 1717, the Swediſh plot in favour of the pretender, was diſcovered and fruſtrated, by his majeſty's great wiſdom aud fortitude. In 1718 we had a quarrel with Spain: The king's fleet commanded by admiral

admiral Byng, engaged theirs near Sicily, and gained a victory the moſt compleate perhaps that ever was: The ſhips on each ſide about 25, and their force in general being equal: Fifteen were taken, and ſeven or eight more were burnt or ſunk. In 1719, a party of Spaniards, with ſome fugitive Scotch lords, encouraged by Charles of Sweden landed in Scotland: General Wightman killed ſome, and took the reſt priſoners; but the lords made their eſcape. This year and the next, are very remarkable for the South Sea ſcheme, and many other ſpecious airy bubbles to get money; in which a million and a half ſterling *was won and loſt by the adventurers.* A little before this, James Shepherd was executed for a deſign to kill the king; as was James Mathews, for printing and publiſhing a treaſonable libel. In 1722, ſome hundred of Britiſh ſlaves were freed from captivity by his majeſty's treaty with the Moors. And in June 16, the ſame year, died John Churchill, duke of Marlborough. The king made a viſit this ſummer round the weſt of England to Portſmouth; and at his return was diſcovered a dangerous conſpiracy againſt the government: It was the ſubject of a long parliamentary inquiry; and the reſult was, that ſeveral lords were committed to the Tower; councellor Layer was hanged, and biſhop Atterbury was deprived and baniſhed. In 1724, his majeſty inſtituted two king's profeſſors of modern languages and hiſtory; one in Cambridge and one in Oxford. The next year he revived the order of Bath with greater dignity and ſplendour: and ſoon after, in conjunction with the ſtates of Holland, he got the Oſtend company demoliſhed which was ſet up by the emperor, to hurt the Engliſh and Dutch. In 1726, he ſent admiral Wager with a ſtrong ſquadron of ſhips up to the harbour of Revel, which effectually hindered the Ruſſians joining againſt us, or diſturbing the peace of the north. Then followed the ſecret alliance between the emperor and king of Spain, levelled againſt our intereſt and privileges; the firſt effect of which was, the Spaniards demand of Port-Mahon and Gibraltar, the latter of which they beſieged with great vigour, but all in vain, it was ſo well ſupplied and defended. During theſe things, in the beginning of June, 1727, his majeſty ſet out for Hanover, but being taken ill on the road, he continued ſo till he came to his

brother's houſe at Oſnaburg, where he died on the 11th of June, in the 67th year of his age, and was buried at Hanover. He was a prince of great and ſingular virtues; wiſe, valiant, temperate and generous: Had an honeſt ſpirit, and a compoſed reſolution, ever to vindicate the honour of his crown and the rights of his people. He left an only ſon, George, prince of Wales, who ſucceeded him, and a daughter named Sophia, married to Frederick II, king of Pruſſia. His wife was the lady Sophia, daughter of his uncle the duke of Zell, a fine princeſs, with many graceful endowments. She died towards the end of the year 1726, at the caſtle of Athen in Lunenburg, where ſhe had been retired ſeveral years.

GEORGE II.

June 14, 1727, An expreſs arriving with an account of the death of George I, his late majeſty, George II, then in the 44th year of his age, repaired from Richmond where he had received the intelligence to Leiceſter houſe; and the members of the privy council were ſworn anew. The king declared his firm reſolution to preſerve the conſtitution in church and ſtate; and to cultivate thoſe alliances which his father had made with foreign princes. At the ſame time he took and ſubſcribed the oath for the ſecurity of the church of Scotland, as required by the act of union. Next day he was proclaimed king of Great Britain. The parliament aſſembled in purſuance of the act for that purpoſe; but was immediately prorogued by commiſſion to the 27th day of the month. The king, in his ſpeech to both houſes at the opening of the ſeſſions, profeſſed a fixed reſolution to merit the love and affection of his people, by maintaining them in full enjoyments of their religious and civil rights. All which he moſt inviolably obſerved. On the 11th day of October following, the coronation, with that of his queen, was performed at Weſtminſter abbey, with the uſual ſolemnity; and at the time when the courts of France and Spain were perfectly reconciled, and Europe freed from the calamities of war.

It will not be amiſs here to obſerve that his late majeſty's queen was the princeſs Wilhelmina Charlotte Caroline, daughter to John Frederick, marquis of Brandenburg Anſpach;

Anſpach; to who his majeſty was eſpouſed on the 2d of January, 1705, and by whom he had two ſons, Frederick Lewis, prince of Wales, born at Hanover, Jan. 31, 1707; and William Auguſtus, born at London, April 15, 1721. She had likewiſe born four princeſſes, namely, Ann, Amelia, Caroline, and Mary, and was afterwards delivered of Louiſa, married in the ſequel to the king of Denmark.

In the year 1728, the merchants of London complained by petition of the Spaniard's depredations, and drew up an addreſs that his majeſty would be graciouſly pleaſed to uſe his endeavours for preventing ſuch depredations; and to ſecure to his ſubjects the free exerciſe of commerce and navigation to and from the Britiſh colonies in America. The commons having made further progreſs in the enquiry, paſſed ſome reſolutions, in which the Spaniards were accuſed of having violated the treaties ſubſiſting between the two crowns; and with having treated inhumanely the maſters and crews of ſhips belonging to Great Britain.

The year following his majeſty ſignified his intention to viſit his German dominions, and having prorogued both houſes, appointed his queen regent of the realm; and ſet out for Hanover the 17th day of May, in order to remove the miſunderſtanding between that electorate and the court of Berlin. The whole united kingdom of Great Britain at this juncture enjoyed uninterrupted repoſe; and his majeſty ſoon after returned. The parliament aſſembled on the 13th of January, the king gave them to underſtand that the peace of Europe was firmly eſtabliſhed, and that all former conventions made with Spain in favour of the Britiſh trade and navigation, were renewed and confirmed; and that the court of Spain had agreed to an ample reſtitution and reparation for unlawful ſeizers and depredations; and no one conceſſion made to the prejudice of his ſubjects.

In 1732, the exciſe ſcheme was propoſed by Sir Robert Walpole, who, in parliament, expatiated largely on the frauds that were committed by ſmugglers, who enriched themſelves by cheating the public. He propoſed to join the law of exciſe to thoſe of the cuſtoms, in regard to tobacco. That a further ſubſidy of three farthings per lb. charged upon imported tobacco, ſhould be ſtill levied at the

the cuſtom houſe, and payable to his majeſty's civil liſt, as heretofore; with appointment of proper officers to inſpect the ſame. Thoſe who argued againſt the ſcheme, accuſed the miniſter of having miſrepreſented the frauds, and made falſe calculations; and would only ſerve to expoſe the factors to ſuch oppreſſion, that they would not be able to continue the trade; and conſequently this ſcheme would tend to promote a general exciſe, which was in all countries conſidered as a grievous oppreſſion; and would produce an additional ſwarm of exciſe men and warehouſe-keepers, multiply the dependants on the crown, and enable it ſtill farther to influence the freedom of elections. The whole nation being alarmed, clamoured loudly againſt the bill, and Sir Robert went in fear of his life; and at laſt thought proper to drop the deſign, by moving that the ſecond reading of the bill might be poſtponed till the 12th day of June.

In November, 1733, the prince of Orange arrived at Greenwich, in order to eſpouſe the princeſs royal; but the marriage was poſtponed ſome little time, on account of his being take ill, and forced to retire to Bath for the recovery of his health.

In the year 1734, the powers at war upon the continent acted with ſurpriſing vigour. The Ruſſians and Saxons inveſted the city of Dantzick, in hopes of ſecuring king Staniſlaus, but he eſcaped in the diſguiſe of a peaſant to Marienwarder, in the Pruſſian territories. And upon the Rhine the French armies bore down all reſiſtance. So little reſpect did the French court pay to the Britiſh nation, that an edict was publiſhed in Paris to compel the Britiſh ſubjects to inliſt in the French army. About this time Sir John Norris ſailed to Lisbon, to protect the Portugueſe againſt the reſentment of the king of Spain.

On the 27th of April, 1736, the marriage was celebrated between the prince of Wales and the princeſs of Saxe-Gotha. The king put an end to the ſeſſion of Parliament, appointed his queen regent, and ſet out for Hanover. The ſame year Capt. Porteous was tried for murder, in Scotland, and convicted, but the queen, as regent, granted a reprieve; this ſo incenſed the mob, that they roſe in the night, broke open the priſon doors, and left him hanging

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in the city on a dyer's pole, and quietly diſperſed to their ſeveral habitations, without one perſon ever being found out.

1737. In this year a breach happened between his majeſty and his eldeſt ſon Frederic, then prince of Wales in regard to the concealment of the pregnancy of the princeſs of Wales, of the princeſs Auguſta, which his majeſty reſented as an indignity offered to himſelf and his queen. In this year, on the 20th of Nov. 1737, queen Carolina, his majeſty's conſort, died of a mortification in her bowels, in the 55th year of her age.

1738. At this period the princeſs of Wales was delivered of a ſon, who was baptized by the name of George, ſince king of England. His birth was celebrated with uncommon rejoicings.

1739. Letters of marque and repriſals were granted againſt the Spaniards, a promotion made of general officers; the troops were augmented; a great fleet was aſſembled at Spithead; a reinforcement ſent out to admiral Haddock; and an embargo laid on all merchant ſhips. Admiral Vernon was ſent to the Weſt Indies to take command of the ſquadron in thoſe ſeas, and to annoy the trade and ſettlement of the Spaniards, on which war was declared againſt Spain, the 23d day of October, 1739.

On the thirteenth day of March, 1740, an expreſs arrived from the Weſt Indies, of admiral Vernon having taken Porto Bello, with ſix ſhips only, and demoliſhed all the fortifications of that place. In the ſame year happened the great froſt which began on Chriſtmas day, and continued to the latter end of February. The river of Thames was froze over, and booths and tents were erected on it.

1741. In the courſe of this year, while admiral Haddock lay at anchor in the bay of Gibraltar, with 12 ſhips of the line, the Spaniſh fleet joined with the French ſquadron from Toulon paſſed by. The Britiſh admiral drew up in Line of battle, but the Spaniards ſending a flag of truce, and the combined fleets amounting to double the number of the Engliſh ſquadron, admiral Haddock was obliged to deſiſt and ſuffer them to proſecute their voyage without moleſtation. The ſame year Sir John Norris twice ſailed with a powerful ſquadron to the court of Spain, without

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taking any ſtep to annoy the enemy. The land forces of Great Britain at that time, excluſive of the Daniſh and Heſſian auxiliaries, amounted to 60,000 men, and the fleet conſiſted of above 100 ſhips of war, manned by 54,000 ſailors.

In 1743, the Britiſh reſident in Paris was given to underſtand that a declaration of war muſt enſue, which was there publiſhed on the 20th day of March, and on the 31 day of March war againſt France was publiſhed at London, amidſt the acclamations of the people. About June 1743, was fought the battle of Dettengen, general Clayton and Monro were killed, the duke of Cumberland, who behaved with the greateſt bravery and uncommon proofs of courage, was ſhot through the leg, the earl of Albemarle, general Huſke, and ſeveral officers of diſtinction were wounded. Our ſovereign expoſed his noble perſon to a ſevere fire of cannon, as well as muſquetry, and rode between the firſt and ſecond line with his ſword drawn, encouraging the troops to fight for England's honour. In October following the king returned to Hanover, and put an end to that campaign.

1744, On the 11th of February, a naval engagement between the French and Engliſh was fought by admiral Matthews and Leſtock, off Toulon, when unfortunately capt. Cornwall was killed in the engagement, but the loſs of our men in general was very inconſiderable; the French fleet got off under cover, and Matthews ſteering to Minorca, accuſed Leſtock of miſbehaviour on the day of action, ſuſpended him, and ſent him priſoner to England, who in his turn accuſed Matthews. This became the ſubject of a parliamentary enquiry, when a court martial was conſtituted, ſeveral commanders were caſhiered, Leſtock honourably acquitted, and Matthews rendered incapable of ſerving for the future.

In the month of June, 1744, commodore Anſon returned from his voyage round the world, in the Centurion man of war, in which he had ſuffered innumerable hardſhips in the courſe of three years and nine months. But fortunately having taken a rich ſhip that ſails annually between Aquapulco in Mexico, and one of the Philippine iſles, with a treaſure on board to the value of three hundred and thirteen thouſand pounds ſterling, he returned to Canton, and

and proceeded from thence to the cape of Good Hope, and proſecuted his voyage to England, where he arrived in ſafety. About this time, Sir John Balchan, in his majeſty's ſhip the victory, unfortunately was loſt at ſea with a crew on board amounting to eleven hundred choice officers, ſeamen, and volunteers. And in the year 1745, Cape Briton was taken, a place of great conſequence to the French, and fortified at a prodigious expence. About the ſame time France, in order to divert the intention on the Engliſh, formed a deſign of ſending prince Charles, the pretender's eldeſt ſon, to Scotland, and having ſupplied him with money and arms, embarked in a frigate the 14th day of July, and was joined off Belleiſle by the Elizabeth, a 60 gun French man of war, as his convoy. But falling in with the Lion an Engliſh ſhip of the line, met with ſo warm a reception that the Elizabeth with much difficulty reached the harbour of Breſt. The frigate continued her courſe to Scotland and landed on the coaſt of Lochabar. His majeſty then being abroad, a meſſenger was diſpatched to haſten his return, who arrived the latter end of Auguſt.

England in general were unanimous in oppoſing prince Charles, when they heard of his landing in Scotland. Sir John Cope advanced againſt the rebels there with what forces he could muſter up. But the rebels avoiding him, marched on to Perth, where they were joined by lord George Murray, the duke of Perth, and ſeveral perſons of diſtinction. Being conſiderably augmented they entered Edinburgh without oppoſition, took poſſeſſion of Holyrood houſe, and cauſed his father to be proclaimed at the market croſs, defeated Sir John Cope, at Preſton Pans, reduced the city of Carliſle, and penetrated as far as Derby. He there called a council, and finding the king's troops on their paſſage to attack him, reſolved to make his retreat to Scotland with all poſſible expedition. They abandoned Derby on the 6th of December, and the 12th entered Preſton, continuing their march northwards. The militia of Cumberland were ordered by his royal higneſs the duke, to harraſs them in their march, and notwithſtanding all endeavours, they retreated with the greateſt conduct and regularity. By the time that prince Charles had inveſted the caſtle of Stirling, commanded by general Blakeney, a conſiderable body of the kings forces were aſſembled

at

at Edinburgh, under the command of general Hawley, who reſolved to relieve Stirling caſtle, and advanced to Linlithgow. On the 13th day of January, 1746, his whole army rendesvouzed at Falkirk. On the 17th, the rebels were perceived in full march to attack the king's forces; and for that purpoſe had taken poſſeſſion of a hill on their right. Hawley ordered two regiments of dragoons to drive them from that eminence. Their prince gave the ſignal to fire, by waving his cap, and ſoon threw the royal army into the utmoſt confuſion; few or none would have eſcaped, had not general Huſke and brigadier Cholmondly rallied ſome regiments, and made a gallant ſtand, which favoured the retreat of the reſt to Falkirk.

Things being in this ſituation, it was at laſt judged neceſſary to ſend his royal highneſs the duke of Cumberland to take the command of the army upon him. He put himſelf at the head of the troops at Edinburgh, conſiſting of 14 battallions of infantry, 2 regiments of dragoons, and 1500 highlanders. On the laſt day of January, 1746, the duke marched to Linlithgow; and the enemy who had renewed the ſiege of Stirling caſtle, not only abandoned that enterprize, but croſſed the river Forth with great precipitation, and marching to Culloden there engaged. The cannonading began about one o'clock, and in leſs than 30 minutes they were totally defeated, and the field covered with dead bodies. Prince Charles fled, and was forced to get away by ſtealth, after lurking about the iſlands five months. Several perſons of diſtinction were taken priſoners, among whom was the earl of Cromartie, lord Kilmarnock, lord Lovat and lord Balmerino. They were ſent up to London and tried by the houſe of the peers, found guilty, and all but lord Cromartie were executed upon Tower hill. Several inferior officers were tried in London, found guilty and executed upon Kennington common. Thoſe who were ſeduced by their ſuperiors received his majeſty's gracious pardon; and none fell a ſacrifice to reſentment, but thoſe who were the promoters and inſtigators of ſo unnatural and cruel a rebellion.

1747. The prince of Orange was elected ſtadtholder and captain-general and admiral of the united provinces in Holland. The ſame year a French ſquadron in the latitude of Belle-iſle, was defeated and taken by admiral Anſon and

and Warren; and capt. Grenville, on board the Defiance man of war, unhappily loſt his life.

All the belligerent powers were by this time heartily tired of a war that had conſumed ſuch immenſe treaſures, and done ſo much miſchief. The king of France, in a perſonal converſation with Sir John Ligonier, expreſſed his deſire of a pacification; which in the year 1748, was ſettled and concluded at Aix la Chapelle.

Had England truſted leſs to ſo baſe an enemy, and their miniſters been but true to their country, it would have prevented a ſcene of bloodſhed that afterwards neceſſarily enſued to prevent her from becoming a ſacrifice to her enemies, and ſlaves and dupes to popery and ſuperſtition.

In the month of November, 1748, his majeſty opened the ſeſſions of parliament with a ſpeech; the purport of which was, that the definitive peace was ſigned by all parties concerned in it, and that he had made the moſt effectual proviſion for ſecuring the rights and intereſt of his ſubjects; and farther obſerved, that we might promiſe ourſelves a long enjoyment of the bleſſings of peace. In this ſame year was the rejoicing for the peace, by grand fireworks in St. James's Park.

In the year 1749, Cape Breton was given up to the French; and notwithſtanding all former treaties, ſeveral diſputes aroſe about ſettling the limits in North America. In the year 1750 was erected the Britiſh herring fiſhery. On the 8th day of February, between the hours of 12 and 1, an earthquake alarmed the inhabitants of London and Weſtminſter, which rocked the floors, and ſhook down the furniture, china, &c. from off the ſhelves. On the ſame day of the next month, the inhabitants were alarmed a ſecond time with a ſhock of an earthquake more ſevere than the former; and notwithſtanding it ſeemed to threaten a diſſolution, the providence of God was ſo great that not a houſe was ſhook down, or any damage ſuſtained.

On the 20 day of March, 1751, his royal highneſs the prince of Wales departed this life, in the 45th year of his age, owing to a pleuretic diſorder; and to the unſpeakable lamentation of all people who were well wiſhers to their country.

In the ſame year the bill for naturalizing of foreigners was read in the houſe; but ſeveral petitions by the mer-

chants and others being thrown in, the miniſtry did not think proper to perſiſt in an unpopular meaſure, at ſo critical a juncture; and was therefore no more brought upon the carpet. In the ſame year Mr. Murray was ſent priſoner to Newgate, for ſpeaking diſreſpectfully of the houſe of commons; which occaſioned a great demur among the people.

Beſides the loſs of the prince, his majeſty was deeply affected in the courſe of a few months after, by the untimely death of his youngeſt daughter, the queen of Denmark, who died at Copenhagen on the 19th day of December. Her death had been preceeded about two months, by that of her brother in law the prince of Orange, no leſs regretted by the united provinces of Holland, for his candour, integrity and love to his country.

1752. Among the proceedings of this ſeſſions, an act was paſſed for the prevention of murder, that every criminal ſo convicted, ſhould be executed in 48 hours, and his body delivered to ſurgeon's hall for public example and utility of ſurgery. This ſeſſions was brought upon the carpet, an act containing a regulation for the better preſervation of the game. In this year the ſtile was changed according to the Gregorian computation by the alteration of eleven days.

1753. This ſeſſions was chiefly diſtinguiſhed by an act for naturalizing the Jews, and a bill to prevent clandeſtine marriages. The laſt paſſed without much oppoſition. The firſt paſſed in the houſe of lords, and was entitled, "An "act to permit perſons profeſſing the Jewiſh religion, to "be naturalized." Several debates were held thereon, and the merchants of London petitioned ſtrongly againſt it, but were overpowered by the miniſtry. Notwithſtanding all their arguments the bill paſſed both houſes; but, finding the inconveniency, was repealed the latter end of the ſeſſions.

1754. This year the ambition and intrigues of the French court, by which the Britiſh intereſt was invaded and diſturbed on the continent of America, extended itſelf likewiſe to the Eaſt Indies, where they endeavoured to embroil the Engliſh company with divers nabobs and princes. But being defeated by the vigilance of Mr. Clive, the Britiſh forces proved too many for them.

1755.

1755. Whilſt all Europe was in ſuſpence about the fate of the Engliſh and French ſquadrons, preparations for a vigorous ſea war was carrying on in England, with unparralled ſpirit and ſucceſs; and admiral Boſcawen had orders to attack the French ſhips where ever he ſhould meet them. The Alcide and Lys, French men of war, was about this time taken by the Dunkirk, capt. How, and the Deſiance, capt. Andrews.

The beginning of 1756, meaſures were taken by the government of England to arm themſelves againſt a French invaſion. A conſiderable number of troops were levied: New ſhips of war built, and daily put in commiſſion. Above eighty ſhips of the line and threeſcore frigates were now equipped, and a conſiderable body of land-forces aſſembled, when on the 3d of February, a proclamation was iſſued, requiring all officers civil or military, to act in defence of their country, in caſe of an invaſion.

Admiral Byng ſailed for the Mediterranean with ten ſhips under his command, in order to reinforce fort St. Philip. He arrived at Gibraltar, and was there reinforced by a detachment from the garriſon, and joined by the Phœnix, capt. Harvey, in order to aſſiſt Minorca. On the 8th of May he ſailed from thence, and fell in with the French fleet under command of Galiſſoniere, and proceeded to action. But not bearing down with the expedition neceſſary upon the occaſion (whether through want of courage, or with the intent to avoid the error of admiral Matthews in a prior engagement, I cannot undertake to ſay) threw the reſt of the fleet into confuſion; and rear-admiral Weſt could not purſue his advantage without running the riſk of having his communication with the line cut off. Clear it is that Mr. Byng made little or no uſe of his artillery; and Galiſſoniere ſeemed equally as averſe to action, and tho' more in number than the Engliſh, took the advantage of Byng's heſitation and ſheered off.

The conſequence of this was, directions were diſpatched to admiral Hawke to ſend Byng home under an arreſt, which were accordingly obeyed.

Galiſſoniere purſued his courſe to Minorca, where a ſtout defence was made by the brave general Blakeney, who ſupported the ſiege with the utmoſt bravery, but being overpowered in time by numbers, was forced to capitulate.

The articles of capitulation were no ſooner ſigned, than Galiſſoniere made all the haſte back to France, leaſt he ſhould be intercepted by admiral Hawke, who he was informed was coming to the aſſiſtance of fort St. Philip. The admiral arrived; and to his great mortification found the French colours there flying.

Sir Edward Hawke being diſappointed in hopes of encountering Galiſſoniere, and relieving the Engliſh garriſon of St. Philip's, aſſerted the empire of Great-Britain in the Mediterrancan, by annoying the commerce of the enemy, and blocking up their ſquadron in the harbour of Toulon.

As the miniſtry were determined to make their chief efforts againſt the enemy in North America, where the firſt hoſtilities had been committed, two regiments were ſent there under the command of general Abercrombie, and the chief command of all the forces in America, was committed to the earl of Loudon, a nobleman of an amiable character, who had ſeveral times diſtinguiſhed himſelf in the ſervice of his country. Mr. Abercrombie ſet ſail for America in march, but the earl of Loudon did not embark till the latter end of May.

Theſe meaſures being taken, his majeſty on the 18th day of May 1756, publiſhed a declaration of war againſt the French king; importing, that ſince the treaty of Aix la-Chapelle, the uſupations and encroachments made upon the Britiſh territories in America, had been too notorious not to reſent: That the unjuſtifiable practices of the French governors, and officers acting under them, were ſtill continued, till they broke out in open acts of hoſtility in 1754, when in profound peace and without any declaration of war, a body of French troops, bearing the French king's commiſſion, attacked in an hoſtile manner, and took poſſeſſion of an Engliſh fort on the river Ohio, in North America: That great naval armaments were prepared in the ports of France; and a large body of French troops embarked from that kingdom: That though the French ambaſſador was ſent back to England, to accommodate theſe differences, it was only under the ſpecious pretence of amuſement: That in conſequence of the neceſſary meaſures taken by the king of Great Britain, for preventing the ſucceſs of ſuch a dangerous deſign, the French ambaſſador was recalled from England: The fortifications of Dunkirk

Dunkirk were enlarged, great bodies of troops marched down to the ſea coaſt of France, and the Britiſh dominions threatened with invaſion: That tho' the king of England, in order to fruſtrate theſe intentions, had given orders at ſea for ſeizing the ſhips belonging to the French king and his ſubjects, yet he had hitherto contented himſelf with detaining thoſe ſhips that had been taken, and preſerving their cargoes entire, without proceeding to confiſcation; but it being at laſt evident from the hoſtile invaſion of Minorca, that the court of Verſailles were determined to reject all propoſals of accommodation, his Britannic majeſty could no longer, conſiſtently with the honour of his crown, and the welfare of his ſubjects, put up with theſe inſults, were the motives that induced him to declare war.

The beginning of June the French king declared war againſt England.

About this time admiral Watſon and Mr. Clive deſtroyed the famous Angria, a piratical prince in the neighbourhood of Bombay, ſeized upon his treaſures, and returned back in triumph to Madraſs.

This year, in November, general Blakeney arrived with the forces of Minorca at Portſmouth, amidſt the acclamations of the people, whoſe veneration encreaſed for Blakeney, in proportion to their abhorrence for Byng. His majeſty raiſed him to the rank of an Iriſh baron, in reward for his paſt ſervices.

1757 Was remarkable for the trial of Admiral Byng, on board the St. George at Portſmouth, by a court martial; when, upon examination of ſeveral witneſſes, it appeared that Mr. Byng had not done his endeavours to ſeize and deſtroy the French ſhips, or aſſiſt ſuch of his majeſty's ſhips in taking the ſame when in their power; and as he laid liable to the 12th article of war, he was adjudged guilty, and accordingly ſentenced to be ſhot on board one of his majeſty's ſhips, which ſentence was put in execution on the 14th of march, on board the Monarque, at Portſmouth, notwithſtanding his recommendation to mercy. The ſame year an attempt was made by one Damien to aſſaſſinate the king of France. The king of Pruſſia obtained a complete victory over the Auſtrians near Prague, with the loſs of Mareſchal Schwerin, who was killed in the battle. About the ſame time the French took poſſeſſion of Hanover; and

the duke of Cumberland was ſeverely preſſed on all ſides by the French, and obliged to ſign the convention of Cloſter Seven, by which 38000 Hanoverians were compelled to lay down their arms, and the French let looſe againſt the king of Pruſſia. In this ſame year happened the battle of Rosbach, wherein the king of Pruſſia with 20,000 men, defeated 25,000 French and Imperialiſts, beſides gaining a great victory over them at Liſſa.

1758. The beginning of this year died the princeſs Caroline, aged 45, a lady of an amiable character, and regretted as a pattern of piety and unbounded benevolence. A great number of French privateers and merchantmen were taken by Britiſh cruizers in the channel. This year was remarkably famous for taking Louisbourg in America, and Senegal and Goree in Africa. This year admiral Pocock engaged a French ſquadron in the Eaſt Indies. The duke of Marlborough died at Munſter in Germany, univerſally lamented. The king of Portugal was aſſaſſinated by the duke d'Aveiro, but fortunately eſcaped, being but ſlightly wounded.

Among the domeſtic occurrence of this year, Dr. Florence Henſey was impeached of high-treaſon, tried at the court of King's Bench, Weſtminſter, and found guilty: It appeared he was employed as a ſpy by the court of France, and gave intelligence of our proceedings the foregoing year, againſt Rochfort. After he had received ſentence, he was for ſome private reaſons, beſt known to the miniſtry, pardoned, on condition of perpetual exile. The ſame year Dr. John Shebbear, a very popular writer, was taken into cuſtody for writing the 6th letter to the people of England, and being found guilty, was ſentenced to pay a fine of 5 l. to ſtand once in the pillory and confined 3 years in the king's bench.

1759, Several captures were made of French ſhips. The honour of the Britiſh flag was more effectually aſſerted by admiral Boſcawen, who defeated the French ſquadron in the Mediterranean, under the command of Monſieur de la Clue. This year was more remarkably diſtinguiſhed by taking Guadaloupe, Ticonderoga, Niagara, Crown Point and Quebec, where the unfortunate general Wolfe loſt his life in the defence of his country.

In

In the beginning of the year 1760, the famous French commander, Thurot, attempted to land in Ireland, where, after a ſmart engagement between him and capt. Elliot, Thurot was killed with about 300 of his men, and his whole ſquadron taken. The loſs of the Engliſh amounted only to 5 men killed and 31 wounded. Soon after this event the attention of the public was wholly engaged by the trial of lord G. Sackville for diſobeying the orders of prince Ferdinand at the battle of Minden. The court martial found him guilty, which ſentence was confirmed by the king, and, to ſhew his diſlike of his behaviour, ſtruck him off from the liſt of privy councellors. In this ſame year lord Ferrers was executed at Tyburn for murder.

Oct. 25, 1760, departed this life, his majeſty king George II, who was ſeized with an apoplectic fit, at ſix a clock in the morning, and laying a ſmall time ſpeechleſs, expired. No king ever gained more univerſally the hearts of his ſubjects, who lamented his loſs with the deepeſt ſorrow.

GEORGE III.

As ſoon as the demiſe of the crown was ſignified to the ſecretaries of ſtate, Mr. Pitt repaired to Kew, to communicate the event to his new ſovereign George III, who aſcended the throne in the 23d year of his age. The lords of the privy council were immediately aſſembled, and the next day his majeſty was proclaimed with the uſual ſolemnity. On the 18th of Nov. the parliament met, and his majeſty made a moſt gracious ſpeech from the throne.

1761. Though the animoſity of the belligerent powers was not abated, yet their efforts ſlackened and degenerated by degrees into ſlight ſkirmiſhes and ſmall engagements. The courts of Petersburg, Vienna, France, Sweden and Poland made ſeveral declarations of peace, ſigned at Paris the 31ſt of March, and counter declarations of Great Britain and Pruſſia appeared on the 3d of April. In the month of July the members of the privy council being aſſembled, the king gave them to underſtand that he had made choice of the princeſs Charlotta of Mecklenburg for his conſort, a princeſs diſtinguiſhed by every eminent virtue and amiable endowment, whoſe illuſtrious line had ever diſtinguiſhed

guiſhed themſelves by a particular attachment to his family. In conſequence of which the earl of Harcourt was appointed ambaſſador to demand the princeſs in marriage. The dutcheſſes of Ancaſter and Hamilton were appointed ladies of the bedchamber, to attend her, and on the 8th of Auguſt the princeſs left Mecklenburg, and on the 22d arrived at Stade, and the next day embarked from thence to England. After a tedious voyage, during which the fleet was expoſed to contrary winds, the princeſs landed on the 7th of September, in the afternoon, at Harwich, and proceeding to London, was graciouſly received by his Majeſty at St. James's, and the ſame evening the nuptial ceremonies were performed. The ceremony of the coronation ſtill remained to compleat the brilliancy of this joyful ſeaſon, but was performed on the 22d of September, 1761, amidſt the acclamations of the people.

But to return to the negotiation, to which there were ſix principal objections, which the patriot miniſter Mr. Pitt, warmed with honeſt indignation, rejected with the utmoſt contempt, as not chuſing to ſubmit to a conquered enemy who would gladly have made peace on their own terms. In 1762, the earl of Briſtol was recalled from Spain on account of that court's refuſing to give a categorical anſwer to England's propoſal for peace, that country ſeemingly being inclined to join with France againſt England. War was declared in form againſt Spain; and England proved very ſucceſsful therein. This was not to be wondered at, as the late miniſter Mr. Pitt had the preceeding year employed a very conſiderable part of the force of the nation againſt the French colonies in the Weſt Indies. The conqueſt of Martinique naturally drew on the ſurrender of all the dependant iſlands; the Engliſh being now ſole poſſeſſors of all the Charibbies and that chain of iſlands extending from the eaſtern point of Hiſpaniola almoſt to the continent of South America. The Britiſh adminiſtration were now determined to transfer the war into the Spaniſh Weſt Indies, they turned their thoughts at once on the capital objects the Havannah, the centre of trade and navigation of that part of the world. Lord Albemarle was appointed commander of the land forces, and admiral Pocock of the fleet. They ſailed from Portſmouth the 5th of March, the day on which the Grenades were

ſurrendered

ſurrendered and a fleet ſailed from Martinique under the command of Sir James Douglas to reinforce them, which happily met at cape Nicholas on the 27th of May. From thence they proceeded through the old ſtraits of Bahama to the Havannah, the object of many hopes and fears. When all things were in readineſs for landing, the admiral with a great part of the fleet, bore weſtward, to divert the attention of the enemy, while commodore Keppel and capt. Harvey approached the ſhore to the eaſtward of the harbour, and on the 7th of June effected a landing there in the utmoſt order. The principal part of the army was deſtined to act on the eaſt ſide, in order to cover the ſiege, and ſecure the Engliſh parties employed in procuring proviſions. The other part were occupied in the attack of fort Moro which commanded the town and entrance into the harbour. The enemy's fire and the beſiegers were for ſome time near equal. The Spaniards made a ſally, but were obliged to retire with a loſs of between 2 and 300 men left dead on the ſpot. Several attacks being made without much ſucceſs, proved that nothing but the courſe of time could effect this dangerous undertaking. Unfortunately for us 5000 of our ſoldiers and 3000 ſeamen were down at one time with various diſorders; but on the 12th of July their hopes were revived by being joined by the Jamaica fleet, and received a few days afterwards a reinforcement from New York. On the 30th of July the miners did their buſineſs ſo effectually, as to make a breach which the general and engineer judged practicable for the troops to paſs thro'. Thus animated by the hope of ending their toils, the Engliſh troops mounted the breach with ſuch alacrity and intrepidity, as aſtoniſhed the enemy who flew on all ſides, 400 of the enemy were killed on the ſpot, and 400 more threw down their arms and begged quarters. The Spaniſh marquis de Gonſales bravely fell as he was rallying his people. And governor Don Lewis de Velaſco who had bravely defended the fort, reſolved to ſhare the ſame fate. He collected 100 men in an entrenchment he had made round his colours, but being deſerted by his men, he diſdaining to fly or call for quarters, received a mortal wound and fell, offering his ſword to the conquerors. A capitulation now enſued, the garriſon was reduced to about 700 men, who marched out with honours of war, and were to be conveyed

conveyed to Spain, and the Engliſh troops took poſſeſſion of the Havannah the 14th of Auguſt, when they had been before it 2 months and 8 days. From the conqueſt of this place reſulted all the advantages obtainable in war, as by it the enemy loſt a whole fleet, and in ſpecie and merchandize a computed ſum of three millions ſterling. This ſucceſs was crowned with another equally as fortunate, that is to ſay, the capture of a large Spaniſh regiſter ſhip, called the Hermione, whoſe cargo conſiſted of an immenſe ſum of money.

Aug. 12, 1762, at half an hour after 7 in the morning, the queen was ſafely delivered of a prince, and a few days after the royal infant was created prince of Wales and earl of Cheſter. Nov. 12, his majeſty opened the ſeſſions of Parliament, and declared to them in his ſpeech, that the enemy had been brought to accept of a peace on ſuch terms as he truſted would give his parliament ſatisfaction, which was ſigned at Paris the 10th of Feb. 1763, and proclaimed at London on the 22d of the ſame month.

Soon after a rule for an information was granted in the King's Bench, to take up the ſuppoſed author, printers and publiſhers of the North Briton numb. 45, and Mr. Wilkes, the ſuppoſed author, was taken into cuſtody and carried to the tower; but pleading his priviledge as a member of parliament, was admitted to bail. Upon a trial enſuing he was adjudged the author, and the North Briton was condemned to be burnt at the royal exchange, &c. as a falſe, ſcandalous and ſeditious libel: A tumultuous riot happened at the burning the above paper, and the ſheriffs were inſulted in their office by the populace. On the 6th of December was tried the cauſe by Mr. Wilkes, on account of the meſſengers ſeizing his papers, &c. which was adjudged illegal by lord chief juſtice Pratt, and a verdict given in favour of Mr. Wilkes, and on the 24th of December he ſuddenly ſet out for France.

On the 31ſt of March, 1763, the cyder bill paſſed both houſes, notwithſtanding ſeveral petitions from different counties. The 19th of April the king prorogued the parliament. The 12th of May Sir Charles Aſgill, ſix aldermen, the recorder, &c. waited on his majeſty with the city of London's addreſs on the peace, who were hiſſed by the populace. Bow bell tolled and rang a dumb peal, as

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did likewiſe St. Brides. The 16th of Auguſt the queen was delivered of another prince who was baptized by the name of Frederic. On the 10th of December came on the trial of Mr. Leach, who was arreſted by the meſſengers as the ſuppoſed printer of the North Briton, numb. 45, when after a hearing of 7 hours, a verdict was given for Mr. Leach, with damages and full coſt of ſuit, and ſeveral other cauſes were tried in favour of ſundry of Mr. Leache's men, who likewiſe recovered their damage and coſt of ſuit.

1764, Jan. 16, was conſumated the marriage between the prince of Brunſwick and the princeſs Auguſta, his majeſty's Siſter. The 20th of the ſame month Mr. Wilkes was expelled the houſe, and a new member for Aylesbury choſe in his room. About this time ſeveral diſputes aroſe between lord Clive and the Eaſt India company, and ſeveral freſh diſturbances in the Eaſt Indies became the ſubject of converſation.

1765. Thurſday, Jan. 10, His majeſty went to the houſe of peers, and opened the ſeſſions. Some thouſands of weavers went in a body to petition his majeſty to relieve them, who graciouſly promiſed that their grievances ſhould be redreſſed. In the middle of the ſame month ſentence was paſſed on Mr. Williams for republiſhing numb. 45, of the North Briton, which was to pay a fine of 100 l. to ſtand once in the pillory, to be impriſoned 6 months in the king's bench, and enter into ſecurity of 1000 l. for his good behaviour for 7 years, all which was put in execution the 14th of February following. April 16, came on before the houſe of lords the trial of lord Biron for killing in a duel Mr. Chaworth, and was only found guilty of man-ſlaughter. May 10, the iſle of man was veſted in the crown of Great Britain, and an act paſſed for regulating poſt letters. Auguſt 21ſt, about 4 in the morning, her majeſty was happily delivered of another prince, who was baptized by the name of William Henry. September 2, the demolition on the Jutties of the harbour of Dunkirk was begun. October 5, the ſhips arrived at Philadelphia, with the ſtamps on board, which occaſioned great diſturbances all over America. The 31ſt departed this life, in the 45th year of his age, his royal highneſs the duke of Cumberland, England's glory and the people's darling. He was buried at Weſtminſter, the 9th of November. Sunday, the

29th

29th of Dec. alſo departed this life, his royal highneſs prince Frederic William, his majeſty's youngeſt brother, in the 16th year of his age.

1766. Jan. 14, the parliament met according to adjournment, when his majeſty went to the houſe of peers, and made a moſt gracious ſpeech. The next day the houſe of peers waited on his majeſty with their compliments of condolance on the death of his royal highneſs prince Frederic William, his majeſty's brother. The latter end of this month a ſquadron of men of war were fitting out with all expedition at Portſmouth and Plymouth. Several petitions from Briſtol, York, Liverpool and other trading places were preſented complaning of the hardſhips the different inhabitants laboured under from the decay of trade to North America, and a repeal of the ſtamp act was heartily wiſhed for by the people in general. Accounts were daily received of the inſurrections of divers of the American coloniſts. About the beginning of February her royal highneſs the princeſs of Brunſwick was brought to bed of a prince.

As nothing but diſſatisfaction and diſcontent are to be heard of at this time among the people in general, it is humbly preſumed (and there are great hopes for that preſumption) that the preſent ſeſſions of parliament will amicably adjuſt the ſituation of affairs, ſo as to render the ſubjects of England once more a free and flouriſhing people.

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